United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Virginia Polytechnic
Institute and State
University

Soil Survey of King and Queen County, Virginia

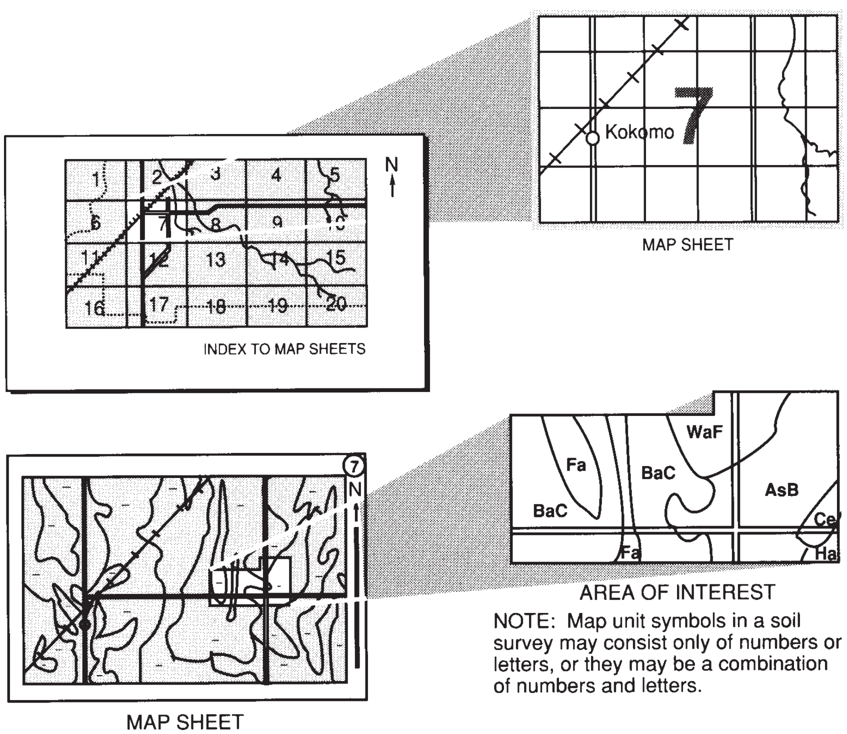
How To Use This Soil Survey

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1990. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1990. The most current official data are available at http://websoilsurvey.nrcs.usda.gov/app/. This survey was made cooperatively by the Natural Resources Conservation Service and the Virginia Polytechnic Institute and State University. The Virginia Department of Conservation and Recreation and the King and Queen County Board of Supervisors provided financial assistance for the survey. The survey is part of the technical assistance furnished to the Three Rivers Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Corn on Emporia sandy loam, 0 to 2 percent slopes.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2007

Foreword

This soil survey contains information that affects land use planning in King and Queen County. It includes predictions of soil behavior for selected land uses. The survey highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use the survey to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of King and Queen County, Virginia

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
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King and Queen County is in the middle peninsula of Virginia, approximately 50 miles west of the Chesapeake Bay (fig. 1). It is bordered on the north by Caroline, Essex, and Middlesex Counties. It is bordered on the south and west by Caroline, King William, New Kent, and James City Counties and by the Mattaponi and Poropotank Rivers.

King and Queen County has a total area of about 327 square miles, including about 320 square miles of land and 7 square miles of water. It has about 208,700 acres of land.

King and Queen Court House, the county seat, is located in the south-central part of the county. In 2000, the population of the county was 6,630 *(19).*

The county is primarily agricultural. Most farms produce cash grain crops. About 60 percent of the county is woodland, and about 40 percent is farmland.

General Nature of the Survey Area

This section provides general information about King and Queen County. It describes history; physiography, relief, and drainage; water resources; transportation; and climate.

History

Prior to 1648, it was unlawful to settle north of the York River because of treaties with the Native American Indian tribes. In 1649, the laws were amended to permit settlement.

In 1691, King and Queen County was named in honor of King William III and Queen Mary II of England. The original county included present-day King William and New Kent Counties and a large portion of present-day Spotsylvania County.

Numerous institutions of learning were established in King and Queen County between 1760 and 1850. Reputable academies were successfully operated at locations near Dunkirk, Fleetwood, Stephensville, Bruington, Newton, and Locust Cottage.

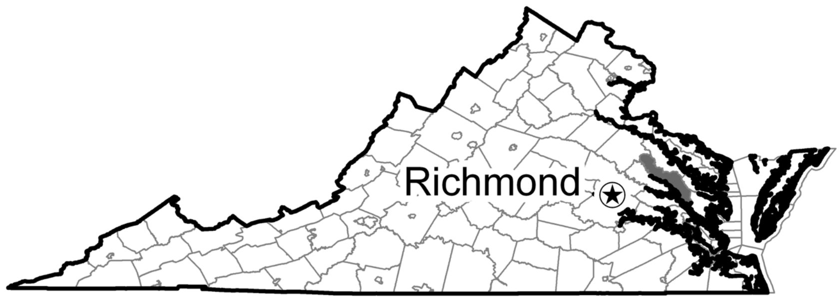

Figure 1.—Location of King and Queen County in Virginia.

The Mattaponi River was a major route during the early years of the county. Many vessels bound for England sailed out on the Mattaponi River. Numerous colonial mansions stood on both sides of the Mattaponi River. Prominent public tobacco warehouses were operated in Todds, Mantapike, and Shepherds as early as 1730. Dunkirk was once an active trade center.

Although no major conflicts of the Civil War occurred in the county, in March 1864 the King and Queen Home Guard helped to end Colonel Ulric Dahlgren's retreat from a raid on Richmond. Dahlgren was killed, and most of his force was captured. In retaliation, King and Queen Court House was burned on March 10, 1864, by Federal forces. Most of the early historical records of the county were lost in the fire.

Physiography, Relief, and Drainage

King and Queen County lies entirely in the Atlantic Southern Coastal Plain. The soils in the county are derived from several ancient, nearly level, marine and alluvial terraces that range from sea level to 190 feet above sea level. The Wicomico Terrace occurs between elevations of 50 and 90 feet; the Chowan Terrace, between elevations of 30 and 50 feet; the Dismal Swamp, between elevations of 15 and 30 feet; and the Princess Anne Terrace, between sea level and 15 feet. These terraces are located along the Mattaponi and Poropotank Rivers. Most of the county is on the Sunderland Terrace, which occurs between elevations of 90 and 190 feet above sea level. The highest point in the county is near Salvia. The Sunderland Terrace extends the length of the county from northwest to southeast, occurring as an elevated, gently rolling plateau that has been dissected by numerous steep drainageways. Steep slopes or escarpments commonly divide this terrace surface from the lower terraces.

Generally, the upper Coastal Plain has a gently rolling topography. The Sunderland and Wicomico Terraces are at the higher elevations and consist of nearly level to strongly sloping uplands that have been deeply eroded by numerous rivers and streams of dendritic watersheds. Moderately steep to very steep side slopes are typical along the smaller drainageways.

The Chowan Terrace and Dismal Swamp occur below an escarpment and consist of broad, nearly level or gently rolling areas with numerous meandering streams. These streams are fed by streams draining the more elevated Sunderland and Wicomico Terraces. Backswamps, oxbow lakes, and freshwater swamps are common.

The Princess Anne Terrace is an area of level or nearly level, low-lying alluvial sediments adjacent to the major tidal rivers and drainageways in the county. It is frequently flooded by brackish water.

The soils in the county range from sand and loamy sand to clay. Gravel deposits in the county are limited in extent.

Water Resources

The survey area is underlain by clay, sand, marl, shell, and a few gravel strata that occur at increasing depths and thicknesses towards the east. A basement complex composed of granitic rock is buried under several thousand feet of ancient marine sediments.

Ground water is usually obtained from several water-bearing strata, which commonly occur between depths of 50 and 200 feet. Wells drilled into these strata are generally for private residential use. In most areas, ground water has a high content of minerals; the content of minerals is lower in water from the deeper wells. In King and Queen County, most livestock use surface water but occasionally are provided water from wells feeding small dugout or embankment ponds.

The major sources of surface water in the county are the Mattaponi and Poropotank Rivers and the King and Queen Dragon Swamps. The Mattaponi and Poropotank Rivers are potential sources of large volumes of surface water throughout the year. Numerous other perennial streams dissect the county and contribute to the flow of the major rivers and swamps. The county also has numerous millponds, beaver ponds, oxbow lakes, backswamps, and manmade lakes, which contribute to the flow of most of the smaller tributaries.

Transportation

The principal highways in King and Queen County include U.S. Highway 360, which runs through the county from Aylett to Miller's Tavern and is the main thoroughfare between Richmond and Tappahannock; Highway VA-14, which runs the southern length of the county from St. Stephens Church to Plain View; Highway SR-721, which runs the northern length of the county from St. Stephens Church to Newtown; and Highway VA-33, which runs through the county from the Lord Delaware Bridge to the Gloucester County line, west of Glenns, Virginia.

The West Point Municipal Airport is located southwest of Shacklefords and has a paved runway. The field is attended during the daylight hours and offers fuel and limited maintenance facilities. Charter service and flight instructions are available.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Walkerton, Virginia, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 39.1 degrees F and the average daily minimum temperature is 28.1 degrees. The lowest temperature on record, which occurred on January 28, 1987, is -12 degrees. In summer, the average temperature is 75.9 degrees and the average daily maximum temperature is 86.9 degrees. The highest recorded temperature, which occurred on September 11, 1983, is 102 degrees.

Growing degree days are shown in the table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 43.65 inches. Of this, 26.03 inches, or about 60 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 7.75

inches, recorded on September 16, 1999. Thunderstorms occur on about 32 days each year, and most occur in July.

The average seasonal snowfall is 11.1 inches. The greatest snow depth at any one time during the period of record was 15 inches, recorded on January 25, 2000. On average, 9 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 14 inches, recorded on January 8, 1996.

The average relative humidity in midafternoon is about 51 percent. Humidity is higher at night, and the average at dawn is about 81 percent. The sun shines 72 percent of the time possible in summer and 56 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 9.1 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally

are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Mattaponi fine sandy loam, 2 to 6 percent slopes, is a phase of the Mattaponi series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Emporia-Slagle-Rumford complex, 15 to 50 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example.

Table 4 lists the map units in this survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

1A—Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level linear, concave treads
Size of areas: 5 to 75 acres

Map Unit Composition

Augusta and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—yellowish brown fine sandy loam

Subsurface layer:
6 to 9 inches—yellowish brown fine sandy loam; grayish brown iron depletions

Subsoil:
9 to 19 inches—light brownish gray sandy clay loam; gray iron depletions and light yellowish brown masses of oxidized iron
19 to 39 inches—light brownish gray clay loam; light yellowish brown and yellowish brown masses of oxidized iron
39 to 45 inches—light brownish gray clay loam
45 to 60 inches—gray sandy clay loam; yellowish brown masses of oxidized iron

Substratum:
60 to 70 inches—gray loamy sand

Minor Components

Dissimilar components:
- Roanoke soils, which are poorly drained and have more clay in the subsoil than the Augusta soil; in the lower landscape positions
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Augusta soil; in similar landscape positions

Similar components:
- Munden and Tetotum soils, which are moderately well drained; in the higher landscape positions
- Tomotley soils, which are poorly drained; in the lower landscape positions

Soil Properties and Qualities

Available water capacity: High (about 9.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Somewhat poorly drained
Depth to seasonal water saturation: About 12 to 24 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, soybeans, peanuts, and wheat; not suited to grass-legume hay
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pasture

Suitability: Moderately suited
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland

Suitability: Well suited to loblolly pine and southern red oak; moderately suited to sweetgum
- Soil wetness may limit the use of log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- This soil is well suited to haul roads and log landings.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Prime farmland if drained
Land capability class: 4w
Virginia soil management group: Z
Hydric soil: No

2A—Bojac loamy sand, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level convex treads
Size of areas: 5 to 50 acres

Map Unit Composition

Bojac and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 10 inches—yellowish brown loamy sand

Subsoil:
10 to 18 inches—yellowish brown sandy loam
18 to 27 inches—light yellowish brown sandy loam
27 to 35 inches—brownish yellow sandy loam
35 to 49 inches—brownish yellow sandy loam; light yellowish brown masses of oxidized iron
49 to 55 inches—light yellowish brown loamy sand; brownish yellow masses of oxidized iron

Substratum:
55 to 62 inches—brownish yellow loamy sand; light gray iron depletions

Minor Components

Dissimilar components:
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in similar landscape positions
- Craven and Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Bojac soil; in the lower landscape positions

Similar components:
- Munden soils, which are moderately well drained; in the lower linear or concave landscape positions
- State soils, which are well drained and have more clay in the subsoil than the Bojac soil; in similar landscape positions
- Soils that have a cobbly or gravelly surface layer; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Low (about 5.9 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 79 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts, wheat, and grass-legume hay; moderately suited to corn; poorly suited to soybeans
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine, southern red oak, and sweetgum
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2w
Virginia soil management group: DD
Hydric soil: No

2B—Bojac loamy sand, 2 to 6 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace

Position on the landform: Gently sloping, convex treads
Size of areas: 5 to 50 acres

Map Unit Composition

Bojac and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 10 inches—yellowish brown loamy sand

Subsoil:
10 to 18 inches—yellowish brown sandy loam
18 to 27 inches—light yellowish brown sandy loam
27 to 35 inches—brownish yellow sandy loam
35 to 49 inches—brownish yellow sandy loam; light yellowish brown masses of oxidized iron
49 to 55 inches—light yellowish brown loamy sand; brownish yellow masses of oxidized iron

Substratum:
55 to 62 inches—brownish yellow loamy sand; light gray iron depletions

Minor Components

Dissimilar components:
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in landscape positions similar to those of the Bojac soil
- Craven and Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Bojac soil; in the lower landscape positions

Similar components:
- Munden soils, which are moderately well drained; in the lower linear or concave landscape positions
- State soils, which are well drained and have more clay in the subsoil than the Bojac soil; in similar landscape positions
- Soils that have a cobbly or gravelly surface layer; in landscape positions similar to those of the Bojac soil

Soil Properties and Qualities

Available water capacity: Low (about 5.9 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 79 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts, wheat, and grass-legume hay; moderately suited to corn; poorly suited to soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine, southern red oak, and sweetgum
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2e
Virginia soil management group: DD
Hydric soil: No

3A—Craven fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level concave or linear areas on summits and shoulders
Size of areas: 5 to 15 acres

Map Unit Composition

Craven and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—brown fine sandy loam

Subsoil:
6 to 11 inches—light yellowish brown clay loam; brownish yellow masses of oxidized iron
11 to 31 inches—light yellowish brown clay; reddish brown masses of oxidized iron and gray iron depletions

31 to 45 inches—brownish yellow sandy clay loam; reddish brown masses of oxidized iron and gray iron depletions

Substratum:
45 to 62 inches—brownish yellow, light yellowish brown, and light gray loamy sand

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions
- Emporia and Rumford soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions

Similar components:
- Mattaponi soils, which are well drained; in the slightly higher landscape positions
- Munden and Tetotum soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in the lower landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.9 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 24 to 36 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, peanuts, wheat, grass-legume hay; poorly suited to soybeans
- The high clay content restricts the rooting depth of crops.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine and southern red oak
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: HH
Hydric soil: No

3B—Craven fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Gently sloping concave or linear areas on summits and shoulders
Size of areas: 5 to 25 acres

Map Unit Composition

Craven and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—brown fine sandy loam

Subsoil:
6 to 11 inches—light yellowish brown clay loam; brownish yellow masses of oxidized iron
11 to 31 inches—light yellowish brown clay; reddish brown masses of oxidized iron and gray iron depletions
31 to 45 inches—brownish yellow sandy clay loam; reddish brown masses of oxidized iron and gray iron depletions

Substratum:
45 to 62 inches—brownish yellow, light yellowish brown, and light gray loamy sand

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions
- Emporia and Rumford soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions

Similar components:
- Mattaponi soils, which are well drained; in the slightly higher landscape positions
- Munden and Tetotum soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in the lower landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.9 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 24 to 36 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, peanuts, wheat, and grass-legume hay; poorly suited to soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The high clay content restricts the rooting depth of crops.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine and southern red oak
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: HH
Hydric soil: No

3C—Craven fine sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 15 acres

Map Unit Composition

Craven and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—brown fine sandy loam

Subsoil:
6 to 11 inches—light yellowish brown clay loam; brownish yellow masses of oxidized iron
11 to 31 inches—light yellowish brown clay; reddish brown masses of oxidized iron and gray iron depletions
31 to 45 inches—brownish yellow sandy clay loam; reddish brown masses of oxidized iron and gray iron depletions

Substratum:
45 to 62 inches—brownish yellow, light yellowish brown, and light gray loamy sand

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions
- Emporia and Rumford soils, which are well drained and have less clay in the subsoil than the Craven soil; in the higher landscape positions

Similar components:
- Mattaponi soils, which are well drained; in the slightly higher landscape positions

- Munden and Tetotum soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in the lower landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Craven soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.9 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 24 to 36 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to peanuts, wheat, and grass-legume hay; poorly suited to corn and soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The high clay content restricts the rooting depth of crops.

Pasture

Suitability: Moderately suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine and southern red oak
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: HH
Hydric soil: No

4A—Emporia sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 150 acres

Map Unit Composition

Emporia and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Emporia soil; in similar landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in landscape positions similar to those of the Emporia soil

Similar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Emporia soil; in the lower landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Emporia soil; in similar landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

- This soil is well suited to soybeans, peanuts, wheat, and grass-legume hay and moderately suited to corn.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: R
Hydric soil: No

4B—Emporia sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace

Position on the landform: Gently sloping convex areas on summits and shoulders
Size of areas: 5 to 150 acres

Map Unit Composition

Emporia and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Emporia soil; in similar landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in landscape positions similar to those of the Emporia soil

Similar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Emporia soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Emporia soil; in similar landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, peanuts, wheat, and grass-legume hay; moderately suited to corn
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: R
Hydric soil: No

4C—Emporia sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 150 acres

Map Unit Composition

Emporia and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Emporia soil; in similar landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in landscape positions similar to those of the Emporia soil

Similar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Emporia soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Emporia soil; in similar landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts and grass-legume hay; moderately suited to corn, soybeans, and wheat
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The low soil strength is unfavorable for supporting heavy loads.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e

Figure 2.—An area of Emporia-Slagle-Rumford complex, 6 to 15 percent slopes, that is used as pasture.

Virginia soil management group: R
Hydric soil: No

5D—Emporia-Slagle-Rumford complex, 6 to 15 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes (fig. 2)
Size of areas: 5 to 600 acres

Map Unit Composition

Emporia and similar soils: Typically 35 percent, ranging from about 30 to 40 percent
Slagle and similar soils: Typically 30 percent, ranging from about 25 to 35 percent
Rumford and similar soils: Typically 15 percent, ranging from about 10 to 20 percent

Typical Profile

Emporia

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Slagle

Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 18 inches—yellowish brown sandy clay loam
18 to 32 inches—brownish yellow sandy loam; very pale brown iron depletions
32 to 46 inches—yellowish brown sandy clay loam; white iron depletions and yellowish red masses of oxidized iron
46 to 56 inches—yellowish brown sandy clay loam; yellowish brown masses of oxidized iron and very pale brown iron depletions
56 to 62 inches—brownish yellow sandy clay loam; red masses of oxidized iron and very pale brown iron depletions

Rumford

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Bibb and Kinston soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Suffolk soils, which are well drained and similar to the Rumford soil but have more clay in the subsoil; in similar landscape positions
- Craven soils, which are moderately well drained and similar to the Slagle soil but have more clay in the subsoil; in similar landscape positions
- Mattaponi soils, which are well drained and similar to the Slagle soil but have more clay in the subsoil; in concave areas
- Soils that are similar to the Emporia soil but do not have redoximorphic depletions and accumulations in the subsoil; in similar landscape positions
- Soils that have a cobbly or gravelly surface layer; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Emporia—moderate (about 8.8 inches); Slagle—moderate (about 8.3 inches); Rumford—moderate (about 6.3 inches)

Slowest saturated hydraulic conductivity: Emporia and Slagle—moderately low (about 0.01 in/hr); Rumford—high (about 1.98 in/hr)
Drainage class: Emporia and Rumford—well drained; Slagle—moderately well drained
Depth to seasonal water saturation: Emporia—about 36 to 54 inches; Slagle—about 18 to 36 inches; Rumford—more than 6 feet
Water table (kind): Emporia and Slagle—perched; Rumford—none
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Emporia—moderate; Slagle and Rumford—low
Runoff class: Emporia and Slagle—medium; Rumford—low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts; moderately suited to corn, soybeans, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland

Land capability class: 4e
Virginia soil management group: Emporia—R; Slagle—K; Rumford—DD
Hydric soils: No

5E—Emporia-Slagle-Rumford complex, 15 to 50 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Moderately steep to very steep side slopes
Size of areas: 5 to 600 acres

Map Unit Composition

Emporia and similar soils: Typically 35 percent, ranging from about 30 to 40 percent
Slagle and similar soils: Typically 30 percent, ranging from about 25 to 35 percent
Rumford and similar soils: Typically 15 percent, ranging from about 10 to 20 percent

Typical Profile

Emporia

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Slagle

Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 18 inches—yellowish brown sandy clay loam
18 to 32 inches—brownish yellow sandy loam; very pale brown iron depletions
32 to 46 inches—yellowish brown sandy clay loam; white iron depletions and yellowish red masses of oxidized iron
46 to 56 inches—yellowish brown sandy clay loam; yellowish brown masses of oxidized iron and very pale brown iron depletions
56 to 62 inches—brownish yellow sandy clay loam; red masses of oxidized iron and very pale brown iron depletions

Rumford

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Bibb and Kinston soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Suffolk soils, which are well drained and similar to the Rumford soil but have more clay in the subsoil; in similar landscape positions
- Craven soils, which are moderately well drained and similar to the Slagle soil but have more clay in the subsoil; in similar landscape positions
- Mattaponi soils, which are well drained and similar to the Slagle soil but have more clay in the subsoil; in concave areas
- Soils that are similar to the Emporia soil but do not have redoximorphic depletions and accumulations in the subsoil; in similar landscape positions
- Soils that have a cobbly or gravelly surface layer; in landscape positions similar to those of the Emporia, Slagle, and Rumford soils

Soil Properties and Qualities

Available water capacity: Emporia—moderate (about 8.8 inches); Slagle—moderate (about 8.3 inches); Rumford—moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: Emporia and Slagle—moderately low (about 0.01 in/hr); Rumford—high (about 1.98 in/hr)
Drainage class: Emporia and Rumford—well drained; Slagle—moderately well drained
Depth to seasonal water saturation: Emporia—about 36 to 54 inches; Slagle—about 18 to 36 inches; Rumford—more than 6 feet
Water table (kind): Emporia and Slagle—perched; Rumford—none
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Emporia—moderate; Slagle and Rumford—low
Runoff class: Emporia and Slagle—high; Rumford—medium
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

- These soils are unsuited to cropland.

Pasture

- These soils are unsuited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- The slope poses safety hazards and creates a potential for erosion during construction of haul roads and log landings.
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks and harvesting and mechanical planting equipment is reduced.

- The slope restricts the use of equipment for preparing sites for planting and seeding.
- Because of the slope, the use of mechanical planting equipment is impractical.
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Emporia and Rumford—7e; Slagle—6e
Virginia soil management group: Emporia—R; Slagle—K; Rumford—DD
Hydric soils: No

6A—Faceville fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 50 acres

Map Unit Composition

Faceville and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 7 inches—yellowish brown fine sandy loam

Subsurface layer:
7 to 9 inches—yellowish brown fine sandy loam

Subsoil:
9 to 18 inches—yellowish brown sandy clay
18 to 30 inches—strong brown and reddish yellow sandy clay

30 to 47 inches—red and yellowish red clay loam
47 to 67 inches—yellowish red, red, and strong brown sandy clay loam

Minor Components

Dissimilar components:
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Faceville soil; in concave landscape positions
- Suffolk soils, which are well drained and have less clay in the subsoil than the Faceville soil; in the higher landscape positions

Similar components:
- Mattaponi soils, which are well drained and have a thinner solum than the Faceville soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, peanuts, wheat, and grass-legume hay; moderately suited to corn
- The high clay content restricts the rooting depth of crops.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- This soil is well suited to building sites.

Septic tank absorption fields

- This soil is well suited to septic tank absorption fields.

Local roads and streets

- This soil is well suited to local roads and streets

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: R
Hydric soil: No

6B—Faceville fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Gently sloping convex areas on summits and shoulders
Size of areas: 5 to 50 acres

Map Unit Composition

Faceville and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 7 inches—yellowish brown fine sandy loam

Subsurface layer:
7 to 9 inches—yellowish brown fine sandy loam

Subsoil:
9 to 18 inches—yellowish brown sandy clay
18 to 30 inches—strong brown and reddish yellow sandy clay
30 to 47 inches—red and yellowish red clay loam
47 to 67 inches—yellowish red, red, and strong brown sandy clay loam

Minor Components

Dissimilar components:
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Faceville soil; in concave landscape positions
- Suffolk soils, which are well drained and have less clay in the subsoil than the Faceville soil; in the higher landscape positions

Similar components:
- Mattaponi soils, which are well drained and have a thinner solum than the Faceville soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, peanuts, wheat, and grass-legume hay; moderately suited to corn
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The high clay content restricts the rooting depth of crops.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- This soil is well suited to building sites.

Septic tank absorption fields

- This soil is well suited to septic tank absorption fields.

Local roads and streets

- This soil is well suited to local roads and streets

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: R
Hydric soil: No

7A—Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Flood plain
Position on the landform: Nearly level low, linear, concave areas (fig. 3)
Size of areas: 5 to 200 acres

Map Unit Composition

Kinston and similar soils: Typically 45 percent, ranging from about 40 to 50 percent
Bibb and similar soils: Typically 35 percent, ranging from about 30 to 40 percent

Typical Profile

Kinston

Surface layer:
0 to 4 inches—brown fine sandy loam; brown masses of oxidized iron

Subsoil:
4 to 10 inches—light brownish gray sandy clay loam; brown and pale brown masses of oxidized iron

Substratum:
10 to 28 inches—light gray clay loam; yellowish brown and strong brown masses of oxidized iron
28 to 47 inches—light gray clay loam; yellowish brown masses of oxidized iron and light brownish gray iron depletions
47 to 62 inches—light gray loam

Figure 3.—An area of Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded, that is ponded by beavers.

Bibb

Surface layer:
0 to 6 inches—brown fine sandy loam
6 to 15 inches—dark gray sandy loam; strong brown, brown, and yellowish brown masses of oxidized iron

Substratum:
15 to 30 inches—grayish brown sandy loam
30 to 40 inches—grayish brown loamy sand
40 to 62 inches—grayish brown gravelly sand

Minor Components

Dissimilar components:
- Levy soils, which are very poorly drained and have more clay in the substratum than the Kinston and Bibb soils; in marshes and swamps
- Roanoke and Tomotley soils, which are poorly drained; on low terraces

Similar components:
- Rappahannock soils, which are very poorly drained and organic; in landscape positions similar to those of the Kinston and Bibb soils

Soil Properties and Qualities

Available water capacity: Kinston—moderate (about 8.7 inches); Bibb—moderate (about 6.0 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Poorly drained
Depth to seasonal water saturation: Kinston—about 0 to 12 inches; Bibb—about 6 to 12 inches
Water table (kind): Apparent
Flooding hazard: Occasional
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Parent material: Kinston—loamy alluvial sediments; Bibb—loamy and sandy alluvial sediments

Use and Management Considerations

Cropland

- These soils are unsuited to cropland.

Pasture

- Flooding may damage pastures.
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to sweetgum
- Flooding may result in damage to haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: Kinston—OO; Bibb—EE
Hydric soils: Yes

8A—Levy silt loam, 0 to 2 percent slopes, very frequently flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Swamp
Position on the landform: Nearly level low, linear flood plains
Size of areas: 5 to 25 acres

Map Unit Composition

Levy and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 4 inches—light brownish gray silt loam

Substratum:
4 to 8 inches—light olive gray silty clay
8 to 22 inches—gray and greenish gray silty clay
22 to 35 inches—greenish gray and gray silty clay
35 to 62 inches—gray silty clay

Minor Components

Dissimilar components:
- Bibb and Kinston soils, which are poorly drained and have less clay in the substratum than the Levy soil; on flood plains
- Roanoke and Tomotley soils, which are poorly drained; on low terraces

Similar components:
- Rappahannock soils, which are very poorly drained and organic; in tidal marshes

Soil Properties and Qualities

Available water capacity: High (about 11.4 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: About 0 inches
Water table (kind): Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 1.0 to 2.0 feet
Shrink-swell potential: High
Runoff class: Negligible
Parent material: Clayey alluvial sediments

Use and Management Considerations

Cropland

- This soil is unsuited to cropland.

Pasture

- This soil is unsuited to pasture.

Woodland

Suitability: Well suited to baldcypress; moderately suited to sweetgum

- Flooding may result in damage to haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- Flooding and ponding are limitations affecting building site development.

Septic tank absorption fields

- Flooding and ponding are limitations affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

9A—Mattaponi fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 50 acres

Map Unit Composition

Mattaponi and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsoil:
8 to 18 inches—yellowish brown clay loam
18 to 29 inches—strong brown clay; pale brown iron depletions and brownish yellow masses of oxidized iron
29 to 36 inches—yellowish brown clay

36 to 52 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron
52 to 62 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron

Minor Components

Dissimilar components:
- Emporia, Rumford, and Suffolk soils, which are well drained and have less clay in the subsoil than the Mattaponi soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Mattaponi soil; in concave landscape positions

Similar components:
- Craven soils, which are moderately well drained; in concave landscape positions
- Faceville soils, which are well drained and have a thicker solum than the Mattaponi soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, wheat, and grass-legume hay; moderately suited to corn
- The high clay content restricts the rooting depth of crops.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine and sweetgum
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: R
Hydric soil: No

9B—Mattaponi fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Gently sloping convex areas on summits and shoulders
Size of areas: 5 to 50 acres

Map Unit Composition

Mattaponi and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsoil:
8 to 18 inches—yellowish brown clay loam
18 to 29 inches—strong brown clay; pale brown iron depletions and brownish yellow masses of oxidized iron
29 to 36 inches—yellowish brown clay
36 to 52 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron
52 to 62 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron

Minor Components

Dissimilar components:
- Emporia, Rumford, and Suffolk soils, which are well drained and have less clay in the subsoil than the Mattaponi soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Mattaponi soil; in concave landscape positions

Similar components:
- Craven soils, which are moderately well drained; in concave landscape positions
- Faceville soils, which are well drained and have a thicker solum than the Mattaponi soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.7 inches)

Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, wheat, and grass-legume hay; moderately suited to corn
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The high clay content restricts the rooting depth of crops.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and sweetgum
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: R
Hydric soil: No

9C—Mattaponi fine sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 50 acres

Map Unit Composition

Mattaponi and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsoil:
8 to 18 inches—yellowish brown clay loam
18 to 29 inches—strong brown clay; pale brown iron depletions and brownish yellow masses of oxidized iron
29 to 36 inches—yellowish brown clay
36 to 52 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron
52 to 62 inches—yellowish brown clay; light brownish gray iron depletions and red masses of oxidized iron

Minor Components

Dissimilar components:
- Emporia, Rumford, and Suffolk soils, which are well drained and have less clay in the subsoil than the Mattaponi soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Mattaponi soil; in concave landscape positions

Similar components:
- Craven soils, which are moderately well drained; in concave landscape positions
- Faceville soils, which are well drained and have a thicker solum than the Mattaponi soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 36 to 54 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Parent material: Clayey marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to grass-legume hay; moderately suited to corn, soybeans, and wheat

- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The high clay content restricts the rooting depth of crops.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and sweetgum
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: R
Hydric soil: No

10A—Munden loamy sand, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level linear and concave treads
Size of areas: 5 to 25 acres

Map Unit Composition

Munden and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown loamy sand

Subsoil:
8 to 16 inches—pale brown sandy loam
16 to 24 inches—light yellowish brown sandy loam; pale brown iron depletions
24 to 33 inches—yellowish brown sandy loam; pale brown and light gray iron depletions
33 to 42 inches—pale brown loamy sand; light gray iron depletions

Substratum:
42 to 60 inches—pale brown loamy sand; yellowish brown masses of oxidized iron and light gray iron depletions
60 to 70 inches—light gray sand; very pale brown masses of oxidized iron

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Munden soil; in similar landscape positions
- State soils, which are well drained and have more clay in the subsoil than the Munden soil; in the slightly higher landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; on the lower stream terraces

Similar components:
- Bojac soils, which are well drained; in the slightly higher landscape positions on stream terraces
- Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Munden soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Low (about 5.5 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, wheat, and grass-legume hay
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to sweetgum
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: F
Hydric soil: No

10B—Munden loamy sand, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Gently sloping convex treads
Size of areas: 5 to 25 acres

Map Unit Composition

Munden and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown loamy sand

Subsoil:
8 to 16 inches—pale brown sandy loam
16 to 24 inches—light yellowish brown sandy loam; pale brown iron depletions
24 to 33 inches—yellowish brown sandy loam; pale brown and light gray iron depletions
33 to 42 inches—pale brown loamy sand; light gray iron depletions

Substratum:
42 to 60 inches—pale brown loamy sand; yellowish brown masses of oxidized iron and light gray iron depletions
60 to 70 inches—light gray sand; very pale brown masses of oxidized iron

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Munden soil; in similar landscape positions
- State soils, which are well drained and have more clay in the subsoil than the Munden soil; in the slightly higher landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; on the lower stream terraces

Similar components:
- Bojac soils, which are well drained; in the slightly higher landscape positions on stream terraces
- Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Munden soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Low (about 5.5 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to sweetgum
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2e
Virginia soil management group: F
Hydric soil: No

11A—Pits, gravel

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Size of areas: 5 to 100 acres

Map Unit Composition

Pits, gravel: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

This map unit consists of open excavations from which sand, gravel, road base, and other foundation material has been mined. A typical profile is not given due to the variability of the material.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: None assigned
Virginia soil management group: None assigned
Hydric soils: No

12A—Rappahannock muck, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Tidal marsh
Position on the landform: Nearly level low, linear flood plains
Size of areas: 5 to 25 acres

Map Unit Composition

Rappahannock and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Organic layer:
0 to 12 inches—very dark grayish brown muck
12 to 29 inches—very dark grayish brown highly decomposed plant material
29 to 39 inches—very dark gray highly decomposed plant material

Substratum:
39 to 62 inches—very dark gray sandy loam

Minor Components

Dissimilar components:
- Roanoke and Tomotley soils, which are poorly drained; on low terraces

Similar components:
- Levy soils, which are very poorly drained and mineral; in marshes and swamps
- Bibb and Kinston soils, which are poorly drained and mineral; on flood plains

Soil Properties and Qualities

Available water capacity: Very high (about 12.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: About 0 inches
Water table (kind): Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 2.0 feet
Shrink-swell potential: Low
Runoff class: Negligible
Parent material: Loamy and organic alluvial sediments

Use and Management Considerations

Cropland

- This soil is unsuited to cropland.

Pasture

- This soil is unsuited to pasture.

Woodland

- Flooding may result in damage to haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- Flooding and ponding are limitations affecting building site development.

Septic tank absorption fields

- Flooding and ponding are limitations affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Flooding may damage local roads and streets.

- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

13A—Roanoke loam, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level linear or concave treads
Size of areas: 5 to 75 acres

Map Unit Composition

Roanoke and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown loam

Subsoil:
5 to 10 inches—dark grayish brown clay loam; grayish brown iron depletions and brownish yellow masses of oxidized iron
10 to 30 inches—grayish brown clay; brownish yellow masses of oxidized iron
30 to 36 inches—light brownish gray clay
36 to 42 inches—light brownish gray sandy clay loam; brownish yellow masses of oxidized iron

Substratum:
42 to 62 inches—light brownish gray stratified loamy sand to sandy loam to clay loam; brownish yellow masses of oxidized iron

Minor Components

Dissimilar components:
- Augusta soils, which are somewhat poorly drained and have less clay in the subsoil than the Roanoke soil; in the higher landscape positions
- Bibb and Kinston soils, which are poorly drained and have less clay throughout than the Roanoke soil; on flood plains

Similar components:
- Tomotley soils, which are poorly drained and have less clay in the subsoil than the Roanoke soil; in similar landscape positions
- Wahee soils, which are somewhat poorly drained; in the higher landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Low (about 0.00 in/hr)
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table (kind): Apparent

Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Very high
Parent material: Clayey alluvial sediments

Use and Management Considerations

Cropland

Suitability: Poorly suited to corn, soybeans, and wheat; not suited to grass-legume hay
- The high clay content restricts the rooting depth of crops.
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pasture

Suitability: Moderately suited
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland

Suitability: Moderately suited to sweetgum
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4w
Virginia soil management group: NN
Hydric soil: Yes

14B—Rumford loamy sand, 0 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace

Position on the landform: Nearly level to gently sloping convex areas on summits and shoulders
Size of areas: 5 to 50 acres

Map Unit Composition

Rumford and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Craven and Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soil; in concave landscape positions
- Emporia and Mattaponi soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Similar components:
- Suffolk soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts, wheat, and grass-legume hay; moderately suited to corn; poorly suited to soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2s
Virginia soil management group: DD
Hydric soil: No

14C—Rumford loamy sand, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 50 acres

Map Unit Composition

Rumford and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand

84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Craven and Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soil; in concave landscape positions
- Emporia and Mattaponi soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Similar components:
- Suffolk soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to peanuts, wheat, and grass-legume hay; poorly suited to corn and soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: DD
Hydric soil: No

15A—Slagle sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level linear or concave areas on summits and shoulders
Size of areas: 5 to 150 acres

Map Unit Composition

Slagle and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 18 inches—yellowish brown sandy clay loam
18 to 32 inches—brownish yellow sandy loam; very pale brown iron depletions
32 to 46 inches—yellowish brown sandy clay loam; white iron depletions and yellowish red masses of oxidized iron
46 to 56 inches—yellowish brown sandy clay loam; yellowish brown masses of oxidized iron and very pale brown iron depletions
56 to 62 inches—brownish yellow sandy clay loam; red masses of oxidized iron and very pale brown iron depletions

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Slagle soil; in the higher convex landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in the higher convex landscape positions

Similar components:
- Emporia soils, which are well drained; in the higher convex landscape positions
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Slagle soil; in similar landscape positions

- Mattaponi soils, which are well drained and have more clay in the subsoil than the Slagle soil; in the higher convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

- This soil is well suited to corn, soybeans, peanuts, wheat, and grass-legume hay.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: K
Hydric soil: No

15B—Slagle sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace

Position on the landform: Gently sloping linear or concave areas on summits and shoulders
Size of areas: 5 to 150 acres

Map Unit Composition

Slagle and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 18 inches—yellowish brown sandy clay loam
18 to 32 inches—brownish yellow sandy loam; very pale brown iron depletions
32 to 46 inches—yellowish brown sandy clay loam; white iron depletions and yellowish red masses of oxidized iron
46 to 56 inches—yellowish brown sandy clay loam; yellowish brown masses of oxidized iron and very pale brown iron depletions
56 to 62 inches—brownish yellow sandy clay loam; red masses of oxidized iron and very pale brown iron depletions

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Slagle soil; in the higher convex landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in the higher convex landscape positions

Similar components:
- Emporia soils, which are well drained; in the higher convex landscape positions
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Slagle soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Slagle soil; in the higher convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, peanuts, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum

- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: K
Hydric soil: No

15C—Slagle sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes and areas at the heads of drainageways
Size of areas: 5 to 150 acres

Map Unit Composition

Slagle and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 18 inches—yellowish brown sandy clay loam
18 to 32 inches—brownish yellow sandy loam; very pale brown iron depletions
32 to 46 inches—yellowish brown sandy clay loam; white iron depletions and yellowish red masses of oxidized iron
46 to 56 inches—yellowish brown sandy clay loam; yellowish brown masses of oxidized iron and very pale brown iron depletions
56 to 62 inches—brownish yellow sandy clay loam; red masses of oxidized iron and very pale brown iron depletions

Minor Components

Dissimilar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Slagle soil; in the higher convex landscape positions
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in the higher convex landscape positions

Similar components:
- Emporia soils, which are well drained; in the higher convex landscape positions
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Slagle soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Slagle soil; in the higher convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.01 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts, wheat, and grass-legume hay; moderately suited to corn and soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: K
Hydric soil: No

16A—State fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level convex treads
Size of areas: 5 to 150 acres

Map Unit Composition

State and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 17 inches—light yellowish brown fine sandy loam

Subsoil:
17 to 28 inches—yellowish brown sandy clay loam
28 to 36 inches—yellowish brown sandy loam

Substratum:
36 to 46 inches—yellowish brown loamy fine sand
46 to 56 inches—brownish yellow and very pale brown loamy sand
56 to 62 inches—very pale brown and olive yellow loamy fine sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the State soil; in the higher concave landscape positions
- Munden soils, which are moderately well drained and have less clay in the subsoil than the State soil; in the lower landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in the slightly lower landscape positions

Similar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the State soil; in similar landscape positions
- Tetotum soils, which are moderately well drained; in the lower landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 79 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

- This soil is well suited to corn, soybeans, peanuts, wheat, and grass-legume hay.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine, southern red oak, and yellow-poplar
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: B
Hydric soil: No

16B—State fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Gently sloping convex treads
Size of areas: 5 to 150 acres

Map Unit Composition

State and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 17 inches—light yellowish brown fine sandy loam

Subsoil:
17 to 28 inches—yellowish brown sandy clay loam
28 to 36 inches—yellowish brown sandy loam

Substratum:
36 to 46 inches—yellowish brown loamy fine sand
46 to 56 inches—brownish yellow and very pale brown loamy sand
56 to 62 inches—very pale brown and olive yellow loamy fine sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the State soil; in the higher concave landscape positions
- Munden soils, which are moderately well drained and have less clay in the subsoil than the State soil; in the lower landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in the slightly lower landscape positions

Similar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the State soil; in similar landscape positions
- Tetotum soils, which are moderately well drained; in the lower landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 79 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, peanuts, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine, southern red oak, and yellow-poplar
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: B
Hydric soil: No

17A—Suffolk sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 30 acres

Map Unit Composition

Suffolk and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown sandy loam

Subsurface layer:
8 to 16 inches—yellowish brown sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy loam
21 to 28 inches—dark yellowish brown sandy loam
28 to 37 inches—strong brown sandy clay loam
37 to 43 inches—strong brown sandy loam

Substratum:
43 to 59 inches—yellowish brown loamy sand
59 to 65 inches—very pale brown, brownish yellow, and yellowish brown sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soil; in concave landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the underlying material than the Suffolk soil; in similar landscape positions

- Mattaponi soils, which are well drained and have more clay in the subsoil than the Suffolk soil; in similar landscape positions

Similar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Suffolk soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

- This soil is well suited to soybeans, peanuts, wheat, and grass-legume hay and moderately suited to corn.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: T
Hydric soil: No

17B—Suffolk sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace

Figure 4.—Winter wheat in an area of Suffolk sandy loam, 2 to 6 percent slopes.

Position on the landform: Gently sloping convex areas on summits and shoulders (fig. 4)
Size of areas: 5 to 30 acres

Map Unit Composition

Suffolk and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown sandy loam

Subsurface layer:
8 to 16 inches—yellowish brown sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy loam
21 to 28 inches—dark yellowish brown sandy loam
28 to 37 inches—strong brown sandy clay loam
37 to 43 inches—strong brown sandy loam

Substratum:
43 to 59 inches—yellowish brown loamy sand
59 to 65 inches—very pale brown, brownish yellow, and yellowish brown sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soil; in concave landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the underlying material than the Suffolk soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Suffolk soil; in similar landscape positions

Similar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Suffolk soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to soybeans, peanuts, wheat, and grass-legume hay; moderately suited to corn
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- This soil is well suited to haul roads and log landings and to equipment operations.

Building sites

- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e

Virginia soil management group: T
Hydric soil: No

17C—Suffolk sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 30 acres

Map Unit Composition

Suffolk and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown sandy loam

Subsurface layer:
8 to 16 inches—yellowish brown sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy loam
21 to 28 inches—dark yellowish brown sandy loam
28 to 37 inches—strong brown sandy clay loam
37 to 43 inches—strong brown sandy loam

Substratum:
43 to 59 inches—yellowish brown loamy sand
59 to 65 inches—very pale brown, brownish yellow, and yellowish brown sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soil; in concave landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the underlying material than the Suffolk soil; in similar landscape positions
- Mattaponi soils, which are well drained and have more clay in the subsoil than the Suffolk soil; in similar landscape positions

Similar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Suffolk soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Parent material: Loamy marine sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts; moderately suited to corn, soybeans, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Moderately suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- This soil is well suited to haul roads and log landings.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: T
Hydric soil: No

18B—Tarboro sand, 0 to 6 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level to gently sloping convex treads
Size of areas: 5 to 150 acres

Map Unit Composition

Tarboro and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 7 inches—brown sand

Substratum:
7 to 32 inches—yellowish brown sand
32 to 48 inches—yellowish brown and reddish yellow sand
48 to 58 inches—brownish yellow and reddish yellow sand
58 to 62 inches—yellowish brown sand

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained and have more clay throughout than the Tarboro soil; in similar landscape positions
- Munden and Tetotum soils, which are moderately well drained and have more clay throughout than the Tarboro soil; in concave landscape positions

Similar components:
- Soils that have a thin subhorizon of sandy loam in the subsoil; in landscape positions similar to those of the Tarboro soil
- Soils that have a gravelly surface layer; in landscape positions similar to those of the Tarboro soil

Soil Properties and Qualities

Available water capacity: Very low (about 2.6 inches)
Slowest saturated hydraulic conductivity: High (about 5.95 in/hr)
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Parent material: Sandy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Moderately suited to wheat; poorly suited to corn, soybeans, and peanuts; not suited to grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.
- The limited available water capacity may cause plants to suffer from moisture stress.
- The rate at which plant nutrients are leached is accelerated because of sandy or coarse textured layers.
- Soil crusting decreases water infiltration and interferes with the emergence of seedlings.

Pasture

Suitability: Poorly suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.

Woodland

Suitability: Poorly suited to loblolly pine
- Coarse textured layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured layers increase the maintenance of haul roads and log landings.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3s
Virginia soil management group: II
Hydric soil: No

19A—Tetotum fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level linear and convex treads
Size of areas: 5 to 75 acres

Map Unit Composition

Tetotum and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam; light yellowish brown and strong brown masses of oxidized iron
18 to 25 inches—yellowish brown loam; strong brown masses of oxidized iron
25 to 32 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron and light brownish gray iron depletions
32 to 49 inches—yellowish brown, light yellowish brown, and light brownish gray sandy loam

Substratum:
49 to 56 inches—yellow and yellowish brown sand
56 to 62 inches—yellowish brown and yellow sand

Minor Components

Dissimilar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the Tetotum soil; in the higher landscape positions

- Craven soils, which are moderately well drained and have more clay in the subsoil than the Tetotum soil; in similar landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in the higher landscape positions
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tetotum soil; in the slightly lower, concave landscape positions

Similar components:
- Augusta soils, which are somewhat poorly drained; in concave landscape positions
- Munden soils, which are moderately well drained and have less clay in the subsoil than the Tetotum soil; in similar landscape positions
- State soils, which are well drained; in convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

- This soil is well suited to corn, soybeans, peanuts, wheat, and grass-legume hay.

Pasture

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak and sweetgum
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland

Land capability class: 2w
Virginia soil management group: K
Hydric soil: No

19B—Tetotum fine sandy loam, 2 to 6 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Gently sloping linear and convex treads
Size of areas: 5 to 50 acres

Map Unit Composition

Tetotum and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam; light yellowish brown and strong brown masses of oxidized iron
18 to 25 inches—yellowish brown loam; strong brown masses of oxidized iron
25 to 32 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron and light brownish gray iron depletions
32 to 49 inches—yellowish brown, light yellowish brown, and light brownish gray sandy loam

Substratum:
49 to 56 inches—yellow and yellowish brown sand
56 to 62 inches—yellowish brown and yellow sand

Minor Components

Dissimilar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the Tetotum soil; in the higher landscape positions
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Tetotum soil; in similar landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in the higher landscape positions
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tetotum soil; in the slightly lower, concave landscape positions

Similar components:
- Augusta soils, which are somewhat poorly drained; in concave landscape positions
- Munden soils, which are moderately well drained and have less clay in the subsoil than the Tetotum soil; in similar landscape positions
- State soils, which are well drained; in convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, peanuts, wheat, and grass-legume hay
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak and sweetgum
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: K
Hydric soil: No

19C—Tetotum fine sandy loam, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace

Position on the landform: Strongly sloping side slopes and areas at the head of drainageways
Size of areas: 5 to 50 acres

Map Unit Composition

Tetotum and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellowish brown loam; light yellowish brown and strong brown masses of oxidized iron
18 to 25 inches—yellowish brown loam; strong brown masses of oxidized iron
25 to 32 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron and light brownish gray iron depletions
32 to 49 inches—yellowish brown, light yellowish brown, and light brownish gray sandy loam

Substratum:
49 to 56 inches—yellow and yellowish brown sand
56 to 62 inches—yellowish brown and yellow sand

Minor Components

Dissimilar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the Tetotum soil; in the higher landscape positions
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Tetotum soil; in similar landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in the higher landscape positions
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tetotum soil; in the slightly lower, concave landscape positions

Similar components:
- Augusta soils, which are somewhat poorly drained; in concave landscape positions
- Munden soils, which are moderately well drained and have less clay in the subsoil than the Tetotum soil; in similar landscape positions
- State soils, which are well drained; in convex landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Well suited to peanuts, wheat, and grass-legume hay; moderately suited to corn and soybeans
- The slope increases surface runoff, the erosion hazard, and nutrient loss.

Pasture

Suitability: Well suited
- The slope increases the erosion hazard, surface runoff, and nutrient loss.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak and sweetgum
- Because of the slope, operating conditions are unsafe and the operating efficiency of log trucks is reduced.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- Because of the high content of sand or gravel in the soil, sloughing is increased and cutbanks are more susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The excessive permeability limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.
- The slope limits the proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength may cause structural damage to local roads and streets.
- Designing local roads and streets is difficult because of the slope.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: K
Hydric soil: No

20A—Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace

Position on the landform: Nearly level linear or concave treads
Size of areas: 5 to 15 acres

Map Unit Composition

Tomotley and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown fine sandy loam; brown masses of oxidized iron

Subsoil:
5 to 11 inches—grayish brown loam; yellowish brown masses of oxidized iron
11 to 19 inches—gray sandy loam; yellowish brown masses of oxidized iron
19 to 33 inches—gray sandy clay loam; strong brown and yellowish brown masses of oxidized iron
33 to 45 inches—light brownish gray sandy clay loam; dark yellowish brown masses of oxidized iron

Substratum:
45 to 62 inches—gray sandy loam; yellowish brown masses of oxidized iron

Minor Components

Dissimilar components:
- Bibb and Kinston soils, which are poorly drained; on flood plains
- Levy soils, which are very poorly drained; in swamps and marshes
- Rappahannock soils, which are very poorly drained and organic; in marshes
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tomotley soil; in the higher landscape positions

Similar components:
- Augusta soils, which are somewhat poorly drained; in the higher landscape positions
- Roanoke soils, which are poorly drained and have more clay in the subsoil than the Tomotley soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Parent material: Loamy alluvial sediments

Use and Management Considerations

Cropland

Suitability: Poorly suited to corn, soybeans, wheat, and grass-legume hay
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pasture

Suitability: Poorly suited

- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland

Suitability: Well suited to loblolly pine
- Soil wetness may limit the use of log trucks.
- The low soil strength may create unsafe conditions for log trucks.
- This soil is well suited to haul roads and log landings.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4w
Virginia soil management group: OO
Hydric soil: Yes

21A—Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace
Position on the landform: Nearly level concave treads
Size of areas: 5 to 75 acres

Map Unit Composition

Wahee and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 5 inches—dark brown fine sandy loam

Subsurface layer:
5 to 11 inches—pale brown sandy loam; grayish brown iron depletions

Subsoil:
11 to 19 inches—light brownish gray clay; brownish yellow masses of oxidized iron
19 to 38 inches—light brownish gray clay

Substratum:
38 to 48 inches—grayish brown loamy sand
48 to 62 inches—grayish brown loamy coarse sand

Minor Components

Dissimilar components:
- Augusta soils, which are somewhat poorly drained and have less clay in the subsoil than the Wahee soil; in similar landscape positions
- Munden and Tetotum soils, which are moderately well drained and have less clay in the subsoil than the Wahee soil; in the higher landscape positions

Similar components:
- Roanoke soils, which are poorly drained; in the lower landscape positions
- Soils that are subject to ponding; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 7.5 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Drainage class: Somewhat poorly drained
Depth to seasonal water saturation: About 6 to 18 inches
Water table (kind): Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Very high
Parent material: Clayey alluvial sediments

Use and Management Considerations

Cropland

Suitability: Poorly suited to corn, soybeans, wheat, and grass-legume hay
- The high clay content restricts the rooting depth of crops.
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pasture

Suitability: Poorly suited
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to sweetgum
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- Flooding is a limitation affecting building site development.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4w
Virginia soil management group: OO
Hydric soil: No

W—Water

Setting

This map unit is in the Southern Coastal Plain major land resource area (MLRA 133A). It consists of streams, lakes, ponds, and reservoirs.

This map unit is not assigned any interpretive groups.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for agricultural waste management. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

Effective pasture management practices include maintaining a mixture of grasses and legumes, rotating pasture, deferring grazing, controlling undesirable vegetation, and using proper stocking rates.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

According to the 2002 Census of Agriculture, King and Queen County has about 32,600 acres of cropland *(11)*. Most of the cropland is used for row crops, such as corn and soybeans. Hay crops are grown on about 2,600 acres.

The acreage of cultivated crops has been gradually decreasing. The acreage of pasture has been increasing because more beef cattle are being raised. Some areas of cropland and pasture have been converted to community development.

Nearly level and gently sloping soils, such as Emporia, Craven, and Suffolk soils on uplands and State and Tetotum soils on terraces, have few or no limitations for growing grain crops. These soils also have few or no limitations for growing truck crops, such as tomatoes, sweet corn, melons, and tree fruits. Truck crops, however, are not commercially grown to any significant extent in the county.

Soil erosion is a concern on soils that have slopes of more than 2 percent. If the surface layer is lost to erosion, most of the available nutrients and organic matter are lost. Organic matter improves soil structure, the rate of water infiltration, available water capacity, and soil tilth. Erosion of the surface layer is especially damaging on some soils that have firm, underlying layers because the germination of seeds is difficult. Erosion on farmland causes the sedimentation of streams and ponds and thus reduces water quality for municipal use and for fish and wildlife.

Soil blowing is a concern on soils that have a sandy surface layer, such as Bojac, Munden, and Rumford soils. Maintaining a plant cover or using crop residue as a surface mulch helps to control soil blowing.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5, parts I and II. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based VALUES—the Virginia Agronomic Land Use Evaluation System *(20)*. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable

high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

Realistic yield goals can be maintained over a long-term basis through proper nutrient management and other soil amendments such as lime. Applications of nitrogen and phosphorus from organic and inorganic forms should be done according to approved nutrient management practices and regulations.

Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit *(17)*. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units" and in table 5.

Virginia Soil Management Groups

The Virginia Agronomic Land Use Evaluation System (VALUES) is a system that ranks soils for management and productivity *(20)*. VALUES places each soil series in Virginia into one of 43 management groups. The format of the management groups, A through QQ, include the following soil characteristics—regional occurrence; parent material; landscape position or influence; solum thickness; dominant profile features, such as texture; available water capacity for plants; and internal soil drainage. Yields that are both economically and environmentally feasible were assigned to each management group, based on yields of field trial crop data and research. The following paragraphs describe the soil management groups in King and Queen County.

Group B. The soils in this group formed from alluvium within the Coastal Plain region and are associated with stream and river terraces. These soils are deep, have loamy textures throughout, have a high available water capacity, and are well drained or moderately well drained.

Group F. The soils in this group formed in coarse textured coastal plain sediments in low-lying landscape positions and are underlain by stratified loamy sediments. These soils are deep, have coarse-loamy textures throughout, have a high or moderately high available water capacity, and are somewhat poorly drained.

Group K. The soils in this group formed from mixed marine and fluvial sediments on Coastal Plain landscapes that range from stream terraces to broad, nearly level interfluves on uplands. These soils are deep, have loamy surface layers and clay loam to clayey subsurface layers, have a moderate available water capacity, and are somewhat poorly drained.

Group R. The soils in this group formed from marine sediments on the gently sloping uplands of the Coastal Plain. These soils are deep, have a sandy loam surface layer, have subsurface layers of reddish yellow clay to clay loam, have some mottles in the lower part, have a moderate available water capacity, and are well drained or moderately well drained.

Group T. The soils in this group formed from loamy sediments and are located on uplands and streams terraces in the Coastal Plain. These soils are deep, have fine-loamy subsurface textures, are typically underlain by coarser sediments, have a moderate available water capacity, and are well drained.

Group Z. The soils in this group formed in alluvium in low-lying terrace positions. These soils are deep, have clayey subsurface horizons, have a moderately high available water capacity, and are somewhat poorly drained.

Group DD. The soils in this group formed from loamy sediments and local alluvium. These soils formed on gently sloping uplands and stream terraces of the Coastal Plain. They are moderately deep, have predominantly coarse-loamy

subsurface horizons, and, in some areas, have Arenic or very thick sandy surface layers. They have a moderately low available water capacity and are excessively drained.

Group EE. The soils in this group formed in loamy sediments on low-lying landscape positions of the Coastal Plain. These soils are deep and have coarse-loamy to sandy subsurface horizons. They typically have a high water table during some part of the year even though the soil textures are very sandy. They are poorly drained or very poorly drained.

Group HH. The soils in this group formed from loamy and finer sediments in floodplain positions of the Coastal Plain. These soils are moderately deep, have fine-loamy or clayey subsurface textures, have a moderate available water capacity, and range from somewhat poorly drained to moderately well drained.

Group II. The soils in this group formed from sandy parent materials within the Coastal Plain or from local alluvium or colluvium of sandy origin. These soils are sandy throughout, have little horizonation, have a low or very low available water capacity, and are well drained or moderately well drained.

Group NN. The soils in this group formed in alluvium along streams or on terraces. These soils are moderately deep, have silty to clay loam subsurface textures, have a moderately high available water capacity, and are somewhat poorly drained or poorly drained.

Group OO. The soils in this group formed from alluvium or coastal plain sediments on terraces, levees, and broad, nearly level landscapes of the Coastal Plain. These soils have loamy to silty textures throughout, have a high available water capacity, and are poorly drained.

Group PP. The soils in this group formed in marshes and tidal wetlands in the Coastal Plain. These soils occur in tidal basins, on tidal flats, and in other ponded areas. Some of these soils have organic horizons, have clayey mineral horizons, or have sulfidic materials. The soils have a water table at or near the soil surface and are saturated most of the time.

The management groups for the map units in the survey area are given in the section “Detailed Soil Map Units” and in table 5.

Prime Farmland

Table 6 lists the map units in the survey area that are considered prime farmland. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation’s food supply.

Prime farmland is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or

alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

For some soils identified in table 6 as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

About 105,170 acres in the survey area, or about 57 percent of the total acreage, meets the requirements for prime farmland. About 12,000 acres of this total, however, has a wetness limitation.

Hydric Soils

Table 7 lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site *(6, 8)*.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology *(3, 8, 9, 10)*. Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part *(4)*. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established *(5)*. These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” *(15)* and “Keys to Soil Taxonomy” *(14)* and in the “Soil Survey Manual” *(18)*.

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” *(6)*.

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by

each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

1A	Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded
5D	Emporia-Slagle-Rumford complex, 6 to 15 percent slopes
5E	Emporia-Slagle-Rumford complex, 15 to 50 percent slopes
21A	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 8, parts I, II, and III, show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil

reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction,

management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Permanently frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding

can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Forestland Productivity and Management

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

King and Queen County was originally covered with a virgin forest, but most of the land suitable for cultivation has been cleared. The remaining areas of woodland are generally too steep or too wet for farming. The woodland is composed of second-growth hardwoods, loblolly pine, and Virginia pine.

Forestland Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual" *(12)*, which is available at the local office of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In table 10, parts I through V, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Proper planning for timber harvesting is essential to minimize the potential impact to soil and water quality. A harvest plan should include logging roads, log decks, streamside management zones, stream crossings, skid trails, schedule of activities, and Best Management Practices (BMPs) for each activity. Forests should be managed

to increase economic and environmental benefits. A forest stewardship plan should be developed to guide management and utilization of the woodlands.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual” *(12)*, which is available at the local office of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification,

depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Development

In King and Queen County, the Mattaponi, Poropotank, and York Rivers provide many recreational opportunities, including boating, fishing, swimming, waterskiing, and hunting. Several public boat landings are located along the Mattaponi River. Upland areas throughout the county provide opportunites for hunting and fishing. The County Department of Parks and Recreation organizes and provides facilities for athletic and recreational activities.

In table 11, parts I and II, the soils of the survey area are rated according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special

design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope

modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills,

septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12, parts I and II, show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is

inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 13, parts I and II, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is

distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for

plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 14, parts I and II, give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14, part I, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil.

The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 14, part II, the rating class terms are *good, fair,* and *poor*. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that

the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Soil Properties

Table 16 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil

properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting

their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook” *(13)*, which is available at the local office of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1

to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of some soil features. The estimates are used in land use planning that involves engineering considerations.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(14, 15)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in

the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(18)* and in the “Field Book for Describing and Sampling Soils” *(16)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(15)* and in “Keys to Soil Taxonomy” *(14)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Augusta Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Somewhat poorly drained
Slowest permeability class: Moderate
Slope: 0 to 2 percent

Associated Soils

- Tetotum soils, which are moderately well drained
- Munden soils, which are moderately well drained and have less clay in the subsoil than the Augusta soils
- Tomotley soils, which are poorly drained
- Wahee soils, which have more clay in the subsoil than the Augusta soils
- Roanoke soils, which are poorly drained and have more clay in the subsoil than the Augusta soils

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Aeric Endoaquults

Typical Pedon

Augusta fine sandy loam, 0 to 2, percent slopes, rarely flooded; about 1.0 mile southeast of the intersection of Highways VA-639 and VA-684 on Highway VA-684, about 60 feet west of Highway VA-684, in cropland:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine and few medium and coarse roots; many fine and medium tubular pores; strongly acid; abrupt smooth boundary.

E—6 to 9 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; very friable, slightly sticky, slightly plastic; many fine and few medium roots; many fine and medium tubular pores; common medium distinct grayish brown (10YR 5/2) iron depletions; strongly acid; clear wavy boundary.

Btg1—9 to 19 inches; light brownish gray (10YR 6/2) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many fine and medium tubular pores; common distinct clay films on all faces of peds; common medium faint gray (10YR 6/1) iron depletions and common medium distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg2—19 to 39 inches; light brownish gray (10YR 6/2) clay loam; weak medium and coarse subangular blocky structure; friable, moderately sticky, moderately plastic; few fine and medium roots; many fine and medium and few coarse tubular pores; common distinct clay films on all faces of peds; common medium distinct light yellowish brown (2.5Y 6/4) and yellowish brown (10YR 5/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg3—39 to 45 inches; light brownish gray (10YR 6/2) clay loam; moderate medium

subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; few fine vesicular pores; few faint clay films on all faces of peds; strongly acid; gradual wavy boundary.

BCg—45 to 60 inches; gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium tubular and vesicular pores; few faint clay films on all faces of peds; common medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Cg—60 to 70 inches; gray (10YR 6/1) loamy sand; massive; friable, nonsticky, nonplastic; 2 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Solum thickness: 40 to 80 inches
Rock fragments: 0 to 10 percent quartz gravel throughout the profile
Reaction: Very strongly acid to moderately acid, except in limed areas

A horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture—sandy loam, fine sandy loam, loam, or silt loam

E horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

BE horizon (if it occurs):
Hue—10YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, loam, or silt loam

Btg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Texture—sand, loamy sand, sandy loam, loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Bibb Series

Physiographic province: Southern Coastal Plain
Landform: Flood plains
Parent material: Loamy and sandy alluvial sediments
Drainage class: Poorly drained
Slowest permeability class: Moderate
Slope: 0 to 2 percent

Associated Soils

- Roanoke and Tomotley soils, which have more clay in the subsoil than the Bibb soils
- Levy soils, which are very poorly drained; in freshwater swamps
- Rappahannock soils, which are organic; in brackish tidal marshes
- Kinston soils, which have more clay than the Bibb soils

Taxonomic Classification

Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

Typical Pedon

Bibb fine sandy loam in an area of Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded; 300 feet north of Highway VA-627 and Beaverly Creek, in woodland:

A—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

Ag—6 to 15 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; few fine roots; few fine prominent strong brown (7.5YR 5/6) and common medium distinct brown (10YR 4/3) and yellowish brown (10YR 5/8) masses of oxidized iron; strongly acid; clear smooth boundary.

Cg1—15 to 30 inches; grayish brown (10YR 5/2) sandy loam; massive; very friable, slightly sticky, slightly plastic; strongly acid; gradual smooth boundary.

Cg2—30 to 40 inches; grayish brown (10YR 5/2) loamy sand; massive; very friable; 10 percent rounded quartz gravel; strongly acid; gradual smooth boundary.

Cg3—40 to 62 inches; grayish brown (10YR 5/2) gravelly sand; single grain; loose; 20 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Rock fragment content: 0 to 10 percent in the A horizon; 0 to 30 percent in the C horizon
Reaction: Extremely acid to strongly acid, except in limed areas

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Ag horizon:
Hue—neutral or 10YR or 2.5Y
Value—3 to 7
Chroma—0 to 2
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—3 to 7

Chroma—0 to 2
Texture—commonly stratified; sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

Bojac Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Well drained
Slowest permeability class: Moderately rapid
Slope: 0 to 6 percent

Associated Soils

- Craven and Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Bojac soils
- State soils, which have more clay in the subsoil than the Bojac soils
- Tarboro soils, which are somewhat excessively drained and have less clay than the Bojac soils

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Bojac loamy sand, 0 to 2 percent slopes, rarely flooded; 0.1 mile south on Highway VA-721 to Highway VA-693, about 1.3 miles along the field road extension to a small cultivated field just west of a small cemetery, 50 feet south of the field road, in cropland:

Ap—0 to 10 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; many fine and medium roots; many fine vesicular pores; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; many fine and medium roots; many fine vesicular pores; few faint clay bridging between sand grains; strongly acid; gradual wavy boundary.

Bt2—18 to 27 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine subangular blocky structure; friable, nonsticky, nonplastic; many fine and medium roots; few fine vesicular pores; few faint clay bridging between sand grains; strongly acid; gradual wavy boundary.

Bt3—27 to 35 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; many very fine and fine roots; few fine vesicular pores; few faint clay films on all faces of peds; strongly acid; gradual wavy boundary.

Bt4—35 to 49 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; few faint clay films on all faces of peds; common medium faint light yellowish brown (10YR 6/4) masses of oxidized iron; 5 percent rounded quartz gravel; strongly acid; gradual wavy boundary.

BC—49 to 55 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; common medium faint lenses of sandy clay loam; common medium faint brownish yellow (10YR 6/6) masses of oxidized iron; 5 percent rounded quartz gravel; strongly acid; gradual wavy boundary.

C—55 to 62 inches; brownish yellow (10YR 6/6) loamy sand; single grain; loose, nonsticky, nonplastic; common medium prominent light gray (10YR 7/1) iron depletions; 5 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Solum thickness: 30 to 65 inches
Rock fragments: 0 to 5 percent gravel in the A and B horizons; 0 to 15 percent gravel in the C horizon
Reaction: Extremely acid to slightly acid in the A, E, and B horizons, except in limed areas; very strongly acid to moderately acid in the C horizon
Mica flakes: Few or common in most pedons

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—4 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

BE horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam or clay loam occur in some pedons
Redoximorphic features—horizon has iron depletions with chroma of 2 or less in some pedons below a depth of 40 inches

BC horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand or loamy fine sand
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—4 to 8
Texture—commonly stratified; ranging from sand to loamy fine sand
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Craven Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Clayey marine sediments
Drainage class: Moderately well drained
Slowest permeability class: Slow
Slope: 0 to 10 percent

Associated Soils

- Bojac, Emporia, Rumford, and State soils, which are well drained and have less clay in the subsoil than the Craven soils
- Mattaponi soils, which have better permeability than the Craven soils and have less silt in the subsoil
- Slagle and Tetotum soils, which have less clay in the subsoil than the Craven soils

Taxonomic Classification

Fine, mixed, subactive, thermic Aquic Hapludults

Typical Pedon

Craven fine sandy loam, 0 to 2 percent slopes; 1.4 miles southeast of the junction of Highways VA-639 and VA-684 on Highway VA-684, just past the elbow in Highway VA-684, about 300 feet northwest of a farm road, in cropland:

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, nonplastic; many fine and medium roots; strongly acid; abrupt smooth boundary.

Bt1—6 to 11 inches; light yellowish brown (10YR 6/4) clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; many fine and medium roots; common distinct clay films on all faces of peds; few fine distinct brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Bt2—11 to 31 inches; light yellowish brown (10YR 6/4) clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; many fine roots; common distinct clay films on all faces of peds; common medium prominent reddish brown (2.5YR 5/4) masses of oxidized iron and common fine distinct gray (10YR 6/1) iron depletions; strongly acid; gradual wavy boundary.

BC—31 to 45 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; very friable, moderately sticky, moderately plastic; few fine roots; few faint clay films on all faces of peds; few fine prominent reddish brown (2.5YR 5/4) and common medium faint masses of oxidized iron and common medium prominent gray (10YR 6/1) iron depletions; strongly acid; gradual wavy boundary.

C—45 to 62 inches; brownish yellow (10YR 6/6), light yellowish brown (10YR 6/4), and light gray (10YR 7/2) loamy sand; massive; very friable, nonsticky, nonplastic; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Soil reaction: Very strongly or strongly acid throughout the profile, except in limed areas
Rock fragment content: 0 to 3 percent gravel throughout the profile

Ap horizon:
Hue—10YR or 2.5Y

Value—3 to 6
Chroma—1 to 3
Texture—fine sandy loam, very fine sandy loam, loam, or silt loam

E horizon (if it occurs):
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture—fine sandy loam, very fine sandy loam, loam, or silt loam

BE horizon (if it occurs):
Hue—10YR to 2.5Y
Value—4 to 7
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon (upper part):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—4 to 8
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—iron masses in shades of brown, yellow, or red

Bt horizon (lower part):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

BC horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, clay, or silty clay
Redoximorphic features—iron masses in shades of red, brown, or yellow and iron depletions in shades of gray

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 to 6
Texture—loamy sand, sandy loam, loam, or sandy clay loam
Redoximorphic features—iron masses in shades of red, brown, or yellow and iron depletions in shades of gray

Emporia Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest permeability class: Very slow
Slope: 0 to 50 percent

Associated Soils

- Craven and Mattaponi soils, which are moderately well drained and have more clay in the subsoil than the Emporia soils
- Faceville soils, which have more clay in the subsoil than the Emporia soils
- Rumford soils, which have less clay in the subsoil than the Emporia soils
- Slagle soils, which are moderately well drained
- Suffolk soils, which have coarse substrata within a depth of 50 inches

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Typic Hapludults

Typical Pedon

Emporia sandy loam, 2 to 6 percent slopes; near Clancie, 1.1 miles southwest of Highway VA-647 from its junction with Highway VA-609, about 1,000 feet south on Chesapeake Corporation Road, 100 feet west of the road, in woodland:

A—0 to 6 inches; grayish brown (2.5Y 5/2) sandy loam; weak fine granular structure; friable, nonsticky, nonplastic; many very fine and fine and few medium roots; many fine vesicular pores; moderately acid; clear wavy boundary.

E—6 to 12 inches; light yellowish brown (2.5Y 6/4) sandy loam; massive parting to moderate medium subangular blocky structure; friable, hard, very strong, slightly sticky, slightly plastic; brittle; few fine and medium roots; few fine vesicular pores; moderately acid; clear smooth boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; few faint patchy clay films on all faces of peds; many medium and coarse distinct light yellowish brown (10YR 6/4) masses of oxidized iron; strongly acid; clear smooth boundary.

Bt2—22 to 36 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly hard, strong, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; common distinct clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) and many medium distinct very pale brown (10YR 7/4) masses of oxidized iron; strongly acid; clear smooth boundary.

Bt3—36 to 42 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly hard, strong, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; common distinct clay films on all faces of peds; few fine and medium distinct very pale brown (10YR 7/4) masses of oxidized iron; very strongly acid; clear smooth boundary.

BC—42 to 62 inches; brownish yellow (10YR 6/8), strong brown (7.5YR 5/6), pinkish gray (7.5YR 7/2), and red (2.5YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 75 inches

Rock fragments: 0 to 20 percent gravel in the A, E, and B horizons; 0 to 35 percent gravel in the C horizon

Reaction: Very strongly acid to moderately acid, except in limed areas

A horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4

Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon (upper part):
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red

Bt horizon (lower part):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam; sandy clay or clay in some pedons
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray below a depth of 36 inches

BC horizon:
Hue—2.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam; sandy clay or clay in some pedons
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

C horizon (if it occurs):
Hue—2.5YR to 5Y
Value—3 to 8
Chroma—3 to 8
Texture—sandy loam to clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

Faceville Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Clayey marine sediments
Drainage class: Well drained
Slowest permeability class: Moderate
Slope: 0 to 6 percent

Associated Soils

- Emporia and Suffolk soils, which have less clay in the subsoil than the Faceville soils

- Mattaponi soils, which are moderately well drained and have a yellower subsoil than the Faceville soils
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Faceville soils

Taxonomic Classification

Fine, kaolinitic, thermic Typic Kandiudults

Typical Pedon

Faceville fine sandy loam, 0 to 2 percent slopes; 1.1 miles northeast of the junction of Highways VA-619 and VA-631 on Highway VA-619, about 50 feet west of Highway VA-619, on an elevated rise, in cropland:

Ap—0 to 7 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; very friable, slightly sticky, slightly plastic; many fine and medium and few coarse roots; strongly acid; abrupt smooth boundary.

AB—7 to 9 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium granular structure; very friable, slightly sticky, nonplastic; many fine and medium and few coarse roots; strongly acid; gradual wavy boundary.

Bt1—9 to 18 inches; yellowish brown (10YR 5/8) sandy clay; weak medium subangular blocky structure; friable, moderately sticky, slightly plastic; many fine and medium and few coarse roots; few fine and medium vesicular pores; common distinct clay films on all faces of peds; strongly acid; gradual wavy boundary.

Bt2—18 to 30 inches; strong brown (7.5YR 5/8) and reddish yellow (7.5YR 7/8) sandy clay; moderate medium subangular blocky structure; friable, moderately sticky, slightly plastic; many fine and medium roots; few fine and medium vesicular pores; common distinct clay films on all faces of peds; strongly acid; gradual wavy boundary.

Bt3—30 to 47 inches; red (2.5YR 4/8) and yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few fine vesicular pores; common distinct clay films on all faces of peds; strongly acid; gradual wavy boundary.

Bt4—47 to 67 inches; yellowish red (5YR 5/6), red (2.5YR 4/8), and strong brown (7.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; many medium lenses of clay loam; few distinct clay films on all faces of peds; strongly acid.

Range in Characteristics

Solum thickness: 65 inches or more
Rock fragment content: 0 to 3 percent ironstone nodules in the A and E horizons; 0 to 10 percent quartz gravel throughout the profile
Reaction: Very strongly acid or strongly acid, except in limed areas

A and AB horizons:
Hue—5YR to 10YR
Value—4 or 5
Chroma—2 to 8
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon (if it occurs):
Hue—5YR to 10YR
Value—5 to 7
Chroma—3 or 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

BA horizon (if it occurs):
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—6 to 8
Texture—sandy clay loam or clay loam

Bt horizon:
Hue—10R to 5YR
Value—4 or 5
Chroma—4 to 8
Texture—sandy clay, clay loam, or clay; clay content of the control section ranges from 36 to 55 percent with less than 30 percent silt
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray below a depth of 60 inches

BC horizon (if it occurs):
Hue—10R to 5YR
Value—4 or 5
Chroma—4 to 8
Texture—sandy clay or sandy clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray below a depth of 60 inches

Kinston Series

Physiographic province: Southern Coastal Plain
Landform: Flood plains
Parent material: Loamy alluvial sediments
Drainage class: Poorly drained
Slowest permeability class: Moderate
Slope: 0 to 2 percent

Associated Soils

- Bibb soils, which have a substratum that is coarser than that of the Kinston soils
- Levy soils, which are very poorly drained; in freshwater swamps
- Rappahannock soils, which are very poorly drained and organic; in brackish tidal marshes
- Tomotley soils, which have a developed subsoil
- Roanoke soils, which are poorly drained and have more clay in the subsoil than the Kinston soils

Taxonomic Classification

Fine-loamy, siliceous, semiactive, acid, thermic Fluvaquentic Endoaquepts

Typical Pedon

Kinston fine sandy loam in an area of Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded; 350 feet north of Highway VA-627 and Beaverly Creek, in woodland:

A—0 to 4 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; common medium faint brown (10YR 5/3) masses of oxidized iron; strongly acid; clear smooth boundary.
Bg—4 to 10 inches; light brownish gray (10YR 6/2) sandy clay loam; massive; friable, slightly sticky, slightly plastic; many fine and medium roots; common medium faint

brown (10YR 5/3) and pale brown (10YR 6/3) masses of oxidized iron; strongly acid; gradual smooth boundary.

Cg1—10 to 28 inches; light gray (10YR 7/2) clay loam; massive; firm, slightly sticky, slightly plastic; few fine and medium roots; common medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of oxidized iron; strongly acid; gradual smooth boundary.

Cg2—28 to 47 inches; light gray (10YR 7/2) clay loam; massive; firm; common thin strata of fine sand and sandy loam; common medium prominent yellowish brown (10YR 5/8) masses of oxidized iron and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.

Cg3—47 to 62 inches; light gray (2.5Y 7/2) loam; massive; friable; common thin strata of gravelly loamy sand and sandy loam; 10 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Reaction: Very strongly acid or strongly acid, except in limed areas
Rock fragment content: 0 to 3 percent in the A and B horizons; 0 to 10 percent in the C horizon

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Bg horizon:
Hue—10YR to 5Y
Value—3 to 7
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—3 to 7
Chroma—0 to 2
Texture—sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Levy Series

Physiographic province: Southern Coastal Plain
Landform: Marshes and swamps
Parent material: Clayey alluvial sediments
Drainage class: Very poorly drained
Slowest permeability class: Slow
Slope: 0 to 2 percent

Associated Soils

- Rappahannock soils, which are organic; in brackish tidal swamps

- Kinston, Bibb, and Tomotley soils, which are poorly drained and have less clay than the Levy soils
- Roanoke soils, which are poorly drained

Taxonomic Classification

Fine, mixed, superactive, acid, thermic Typic Hydraquents

Typical Pedon

Levy silt loam, 0 to 2 percent slopes, very frequently flooded; about 7.4 miles southeast of the junction of Highways US-360 and VA-14 at St. Stephens on Highway VA-14, about 50 yards north of the bridge crossing Dickey's Swamp near the center of the drainageway, in woodland:

Ag—0 to 4 inches; light brownish gray (10YR 6/2) silt loam; massive; few faint dark gray (10YR 4/1) organic stains; very strongly acid; clear wavy boundary.

Cg1—4 to 8 inches; light olive gray (5Y 6/2) silty clay; massive; moderately sticky; few faint dark gray (10YR 4/1) organic stains; very strongly acid; clear wavy boundary.

Cg2—8 to 22 inches; gray (5Y 5/1) and greenish gray (5GY 5/1) silty clay; massive; very sticky, very plastic; very strongly acid; gradual wavy boundary.

Cg3—22 to 35 inches; greenish gray (5GY 5/1) and gray (5Y 5/1 and 6/1) silty clay; massive; very sticky, very plastic; few partly decomposed wood fragments; very strongly acid; gradual wavy boundary.

Cg4—35 to 45 inches; gray (5Y 6/1) silty clay; massive; very sticky, very plastic; many partly decomposed wood fragments; few pockets of dark humus; very strongly acid; gradual wavy boundary.

Cg5—45 to 62 inches; gray (5Y 6/1) silty clay; massive; very sticky, very plastic; common pockets of dark humus; few thin layers of sandy loam, sandy clay loam, and sandy clay; very strongly acid.

Range in Characteristics

Reaction: Extremely acid to strongly acid above a depth of 40 inches; strongly acid to mildly alkaline below a depth of 40 inches

A horizon:

Hue—neutral or 10YR to 5Y
Value—3 to 7
Chroma—0 to 2
Texture—silt loam, silty clay loam, silty clay, or clay or the mucky analogs of those textures

Cg horizon:

Hue—neutral or 10YR, 2.5Y, 5Y, 5GY, or 5G
Value—3 to 6
Chroma—0 to 2
Texture—dominantly clay or silty clay; horizon has thin strata of clay loam in some pedons; horizon has organic, sandy, loamy, or clayey layers at a depth of 40 inches below the mineral surface in some pedons; fragments of partly decomposed wood, logs, and buried stumps occur in many pedons

Mattaponi Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Clayey marine sediments
Drainage class: Moderately well drained

Slowest permeability class: Moderately slow
Slope: 0 to 10 percent

Associated Soils

- Craven soils, which have more silt in the subsoil than the Mattaponi soils
- Emporia, Rumford, and Suffolk soils, which are well drained and have less clay in the subsoil than the Mattaponi soils
- Faceville soils, which are well drained and have a red subsoil
- Slagle soils, which have less clay in the subsoil than the Mattaponi soils

Taxonomic Classification

Fine, mixed, subactive, thermic Oxyaquic Hapludults

Typical Pedon

Mattaponi fine sandy loam, 2 to 6 percent slopes; 2.0 miles north of Helmet, 0.6 mile north on Highway VA-624 from its junction with Highway VA-635, about 0.25 mile northeast along farmland, 25 feet north of the farmland, in cropland:

Ap—0 to 8 inches; brown (10YR 5/3) fine sandy loam; weak medium granular structure; friable, slightly hard, slightly sticky, nonplastic; many fine and medium and few coarse roots; few fine and medium tubular pores; strongly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; yellowish brown (10YR 5/8) clay loam; weak medium subangular blocky structure; friable, slightly hard, moderately sticky, slightly plastic; many fine and medium and few coarse roots; few fine and medium tubular pores; few faint clay films on all faces of peds; strongly acid; clear smooth boundary.

Bt2—18 to 29 inches; strong brown (7.5YR 5/6) clay; moderate fine platy structure; very firm, hard, slightly sticky, slightly plastic; many fine and medium and few coarse roots; few fine and medium tubular pores; few distinct continuous clay films on all faces of peds; common medium distinct pale brown (10YR 6/3) iron depletions and brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Bt3—29 to 36 inches; yellowish brown (10YR 5/8) clay; weak medium and moderate fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; few fine, medium, and coarse roots; few fine tubular pores; common distinct continuous clay films on all faces of peds; very strongly acid; clear smooth boundary.

Bt4—36 to 52 inches; yellowish brown (10YR 5/8) clay; moderate medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; few fine and medium roots; few fine tubular pores; common prominent continuous clay films on all faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions and common fine prominent red (2.5YR 4/8) masses of oxidized iron; very strongly acid; gradual smooth boundary.

BC—52 to 62 inches; yellowish brown (10YR 5/8) clay; weak coarse subangular blocky structure; firm, slightly hard, slightly sticky, moderately plastic; few fine and medium roots; few fine tubular pores; few distinct clay films on all faces of peds; many medium and coarse prominent light brownish gray (10YR 6/2) iron depletions and many medium and coarse prominent red (2.5YR 4/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragment content: 0 to 15 percent quartz gravel throughout the profile
Reaction: Very strongly acid or strongly acid, except in limed areas

Ap horizon:
Hue—5YR to 10YR
Value—3 to 7
Chroma—2 to 8
Texture—sandy loam, fine sandy loam, or loam

E horizon (if it occurs):
Hue—5YR to 10YR
Value—3 to 7
Chroma—2 to 8
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 8
Chroma—3 to 8
Texture—clay loam, sandy clay, or clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 8
Chroma—3 to 8
Texture—sandy clay loam, clay loam, sandy clay, or clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

Munden Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Moderately well drained
Slowest permeability class: Moderate
Slope: 0 to 6 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained and have more clay in the subsoil than the Munden soils
- State soils, which are well drained and have more clay in the subsoil than the Munden soils
- Tarboro soils, which are somewhat excessively drained and have less clay in the profile than the Munden soils
- Tetotum soils, which have more clay in the subsoil than the Munden soils

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Munden loamy sand, 0 to 2 percent slopes; 0.5 mile east and 0.25 mile north of the junction of Highways VA-634 and VA-636, about 0.4 mile south of Highway VA-636, about 80 feet south of a farm entrance, in a cultivated field:

A—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; moderately acid; clear wavy boundary.

Bt1—8 to 16 inches; pale brown (10YR 6/3) sandy loam; weak medium subangular blocky structure; very friable; many fine roots; few faint clay films on all faces of peds; moderately acid; gradual wavy boundary.

Bt2—16 to 24 inches; light yellowish brown (10YR 6/4) sandy loam; moderate medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; few faint clay films on all faces of peds; common fine faint pale brown (10YR 6/3) iron depletions; strongly acid; gradual smooth boundary.

Bt3—24 to 33 inches; yellowish brown (10YR 5/4) sandy loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; common faint clay films on all faces of peds; common medium distinct pale brown (10YR 6/3) and common fine distinct light gray (10YR 7/2) iron depletions; strongly acid; gradual wavy boundary.

BC—33 to 42 inches; pale brown (10YR 6/3) loamy sand; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; common fine distinct light gray (10YR 7/2) iron depletions; strongly acid; clear smooth boundary.

C—42 to 60 inches; pale brown (10YR 6/3) loamy sand; massive; very friable, nonsticky, nonplastic; common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron and many coarse distinct light gray (10YR 7/2) iron depletions; strongly acid; gradual smooth boundary.

Cg—60 to 70 inches; light gray (10YR 7/2) sand; single grain; loose, nonsticky, nonplastic; common coarse faint very pale brown (10YR 7/3) masses of oxidized iron; 2 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Solum thickness: 25 to 50 inches or more
Reaction: Very strongly acid to moderately acid, except in limed areas
Rock fragment content: 0 to 5 percent in the C horizon

Ap horizon or A horizon (if it occurs):
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or loam; subhorizons of sandy clay loam occur in some subhorizons
Redoximorphic features—iron masses in shades of brown, red, or yellow and iron depletions in shades of olive or gray

Btg horizon (if it occurs):
Hue—neutral or 7.5YR to 2.5Y
Value—3 to 6
Chroma—0 to 2
Texture—sandy loam, fine sandy loam, or loam; subhorizons of sandy clay loam occur in some pedons

Redoximorphic features—iron masses in shades of brown, red, or yellow and iron depletions in shades of olive or gray

BC horizon:
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—loamy sand, sandy loam, fine sandy loam, or loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon (if it occurs):
Hue—neutral or 7.5YR to 2.5Y
Value—3 to 6
Chroma—0 to 2
Texture—loamy sand, sandy loam, fine sandy loam, or loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 7.5YR to 2.5Y
Value—5 to 7
Chroma—0 to 2
Texture—dominantly sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam; thin strata ranging from sandy clay loam to silty clay occur in some pedons
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Rappahannock Series

Physiographic province: Southern Coastal Plain
Landform: Tidal marshes
Parent material: Loamy and organic alluvial sediments
Drainage class: Very poorly drained
Slowest permeability class: Moderate
Slope: 0 to 1 percent

Associated Soils

- Bibb, Kinston, Tomotley, and Roanoke soils, which are poorly drained and do not have a thick organic surface horizon
- Levy soils, which do not have an organic surface layer more than 16 inches thick

Taxonomic Classification

Loamy, mixed, euic, thermic Terric Sulfisaprists

Typical Pedon

Rappahannock muck, 0 to 1 percent slopes, very frequently flooded; about 0.4 mile south of the junction of Highways VA-666 and VA-667 on Highway VA-667, about 100 feet west of Highway VA-667, in a tidal marsh:

Oe—0 to 12 inches; very dark grayish brown (10YR 3/2) muck; 20 percent rubbed fiber; massive; nonsticky; very fluid; many fine and medium roots; flows easily between fingers when squeezed; moderate sulfur odor; slightly alkaline; gradual wavy boundary.
Oa1—12 to 29 inches; very dark grayish brown (10YR 3/2) sapric material; 10 percent

rubbed fiber; massive; nonsticky; many fine roots; slightly alkaline; gradual wavy boundary.

Oa2—29 to 39 inches; very dark gray (10YR 3/1) sapric material; 5 percent rubbed fiber; massive; slightly sticky; many fine roots; moderately alkaline; gradual wavy boundary.

Cg—39 to 62 inches; very dark gray (10YR 3/1) sandy loam; 5 percent unrubbed fiber; massive; moderately sticky, slightly plastic; moderately fluid; few fine roots; flows easily between fingers when squeezed; strong sulfur odor; moderately alkaline.

Range in Characteristics

Reaction: Strongly acid to moderately alkaline

O horizon:
Hue—neutral or 10YR to 5Y
Value—2 or 3
Chroma—0 to 2
Texture—muck

Cg horizon:
Hue—neutral or 10YR to 5GY
Value—2 to 5
Chroma—0 to 2
Texture—loamy sand or sandy loam

Roanoke Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Clayey alluvial sediments
Drainage class: Poorly drained
Slowest permeability class: Very slow
Slope: 0 to 2 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained and have less clay in the subsoil than the Roanoke soils
- Bibb, Kinston, and Tomotley soils, which have less clay in the subsoil than the Roanoke soils
- Wahee soils, which are somewhat poorly drained

Taxonomic Classification

Fine, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Roanoke loam, 0 to 2 percent slopes, rarely flooded; near Traveler's Rest, about 2.3 miles northwest on Highway VA-721 from Lawson School, 0.3 mile west of Highway VA-721, north of Chapel Creek, in woodland:

Ap—0 to 5 inches; very dark grayish brown (2.5Y 3/2) loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine and medium and common coarse roots; strongly acid; clear smooth boundary.

Btg1—5 to 10 inches; dark grayish brown (2.5Y 4/2) clay loam; moderate medium subangular blocky structure; friable, moderately sticky, slightly plastic; common fine and medium and few coarse roots; common faint clay films on all faces of peds; few fine faint grayish brown (2.5Y 5/2) iron depletions and common medium

distinct brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg2—10 to 30 inches; grayish brown (2.5Y 5/2) clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and few medium and coarse roots; many faint clay films on all faces of peds; few coarse distinct brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg3—30 to 36 inches; light brownish gray (2.5Y 6/2) clay; moderate coarse subangular blocky structure; friable, moderately sticky, moderately plastic; few fine and medium roots; common faint clay films on all faces of peds; very strongly acid; gradual wavy boundary.

BCg—36 to 42 inches; light brownish gray (2.5Y 6/2) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common clay lenses; few faint clay films on all faces of peds; common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Cg—42 to 62 inches; light brownish gray (2.5Y 6/2) stratified loamy sand, sandy loam, and clay loam; massive; very friable; common clay lenses in coarse strata; common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches

Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to slightly acid in the C horizon

Ap horizon:

Hue—10YR to 5Y
Value—2 to 6
Chroma—0 to 2
Texture—fine sandy loam, loam, or silt loam

Eg horizon (if it occurs):

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—fine sandy loam, loam, or silt loam

BAg or BEg horizon (if it occurs):

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—loam, silt loam, clay loam, or silty clay loam

Btg horizon:

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon:

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—sandy clay loam, clay loam, or silty clay loam

Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Texture—sand to clay; commonly stratified
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Rumford Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest permeability class: Moderately rapid
Slope: 0 to 50 percent

Associated Soils

- Craven, Mattaponi, and Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soils
- Emporia and Suffolk soils, which have more clay in the subsoil than the Rumford soils

Taxonomic Classification

Coarse-loamy, siliceous, subactive, thermic Typic Hapludults

Typical Pedon

Rumford loamy sand, 0 to 6 percent slopes; about 1.4 miles north on Highway VA-72 from St. Stephens Church, 100 feet east of Highway VA-721 on a farm lane, 50 feet south of the farm lane, in cropland:

Ap—0 to 7 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; many fine and medium roots; many fine vesicular pores; strongly acid; abrupt smooth boundary.
E—7 to 14 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; many fine and medium roots; common fine vesicular pores; strongly acid; clear wavy boundary.
Bt1—14 to 24 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; many fine and medium roots; common fine vesicular pores; few faint clay bridging between sand grains; strongly acid; clear wavy boundary.
Bt2—24 to 38 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable, nonsticky, nonplastic; many very fine and fine roots; common fine vesicular pores; few faint clay bridging between sand grains; strongly acid; clear wavy boundary.
BC—38 to 55 inches; yellowish brown (10YR 5/6) loamy sand; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; common medium (0.5 to 1 cm thick) faint dark yellowish brown (10YR 4/6) lamellae and white (10YR 8/2) vertical sand lenses; few fine vesicular pores; few faint clay bridging between sand grains; moderately acid; clear wavy boundary.
C1—55 to 84 inches; brownish yellow (10YR 6/8) sand; single grain; loose; few fine

roots; many coarse prominent white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid; gradual wavy boundary.

C2—84 to 95 inches; yellowish brown (10YR 5/6) sandy loam; single grain; loose; few coarse prominent white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid; gradual wavy boundary.

C3—95 to 99 inches; brownish yellow (10YR 6/6) loamy sand; single grain; loose; few coarse distinct white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid.

Range in Characteristics

Reaction: Extremely acid to strongly acid in the A and E horizons, except in limed areas; extremely acid to moderately acid in the B horizon; extremely acid to slightly acid in the C horizon

Ap horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 or 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

BE horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—loamy sand, sandy loam, or fine sandy loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or sandy clay loam

BC horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—loamy sand, sandy loam, or fine sandy loam

C horizon:
Hue—10YR or 2.5Y
Value—5 to 8
Chroma—2 to 8
Texture—dominantly sand to fine sandy loam; thin strata of sandy clay loam occur in some pedons; commonly stratified

Slagle Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Moderately well drained

Slowest permeability class: Very slow
Slope: 0 to 25 percent

Associated Soils

- Craven and Mattaponi soils, which have more clay in the subsoil than the Slagle soils
- Rumford soils, which are well drained and have less clay in the subsoil than the Slagle soils
- Emporia soils, which are well drained
- Faceville soils, which are well drained and have more clay in the subsoil than the Slagle soils
- Suffolk soils, which are well drained and have coarse substrata within a depth of 50 inches

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Aquic Hapludults

Typical Pedon

Slagle sandy loam, 0 to 2 percent slopes; near Dragonville, 3.3 miles northeast on Highway VA-614 from the junction of Highways VA-614 and VA-616, about 0.4 mile east on a field road, 200 feet south of the field road, in cropland:

Ap—0 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; common fine and few medium roots; strongly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; few faint clay films on all faces of peds; strongly acid; gradual wavy boundary.

Bt2—18 to 32 inches; brownish yellow (10YR 6/6) sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; 5 percent fragic properties; few distinct clay films on all faces of peds; common medium distinct very pale brown (10YR 8/2) iron depletions; strongly acid; gradual wavy boundary.

Bt3—32 to 46 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 5 percent fragic properties; few distinct clay films on all faces of peds; common fine distinct white (10YR 8/1) iron depletions and yellowish red (5YR 5/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Bt4—46 to 56 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few distinct clay films on all faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron and very pale brown (10YR 8/3) iron depletions; strongly acid; gradual wavy boundary.

BC—56 to 62 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few distinct clay films on all faces of peds; common medium prominent red (2.5YR 4/8) masses of oxidized iron and common fine prominent very pale brown (10YR 8/3) iron depletions; strongly acid.

Range in Characteristics

Rock fragment content: 0 to 5 percent in the A, E, and B horizons; 0 to 15 percent in the C horizon
Reaction: Extremely acid to strongly acid, except in limed areas

Ap horizon:
Hue—10YR or 2.5Y
Value—2 to 6
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 or 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

BA or BE horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—loamy sand, sandy loam, or fine sandy loam

Bt horizon (upper part):
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or sandy clay loam
Redoximorphic features—iron masses in shades of brown, red, or yellow

Bt horizon (lower part):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, or sandy clay loam
Redoximorphic features—iron masses in shades of brown, red, or yellow and iron depletions in shades of olive or gray

BC horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 8
Chroma—2 to 8
Texture—loamy sand to clay; typically stratified
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

State Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Well drained

Slowest permeability class: Moderate
Slope: 0 to 6 percent

Associated Soils

- Bojac soils, which have less clay in the subsoil than the State soils
- Craven soils, which are moderately well drained and have more clay in the subsoil than the State soils
- Munden soils, which are moderately well drained and have less clay in the subsoil than the State soils
- Tetotum soils, which are moderately well drained
- Tarboro soils, which are somewhat excessively drained and have less clay than the State soils

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

State fine sandy loam, 0 to 2 percent slopes; 0.6 mile south on Highway VA-633 from its junction with Highway VA-620, about 700 feet northeast along a field road, 525 feet north of the field road, in cropland:

Ap—0 to 8 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; many very fine and fine and few medium and coarse roots; few fine tubular pores; strongly acid; abrupt smooth boundary.

E—8 to 17 inches; light yellowish brown (10YR 6/4) fine sandy loam; moderate fine platy structure; friable, nonsticky, nonplastic; common very fine and fine roots; hard and compact in place; few fine vesicular pores; strongly acid; clear wavy boundary.

Bt1—17 to 28 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine and fine and few medium roots; few fine tubular and vesicular pores; common distinct discontinuous clay films on all faces of peds; common fine mica flakes; very strongly acid; clear smooth boundary.

Bt2—28 to 36 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable, nonsticky, slightly plastic; few very fine and fine roots; few fine tubular pores; few faint discontinuous clay films on all faces of peds; common fine mica flakes; very strongly acid; clear smooth boundary.

C1—36 to 46 inches; yellowish brown (10YR 5/8) loamy fine sand; weak fine granular structure; very friable, slightly sticky, nonplastic; few very fine and fine roots; few fine tubular pores; common fine mica flakes; very strongly acid; clear smooth boundary.

C2—46 to 56 inches; brownish yellow (10YR 6/6) and very pale brown (10YR 7/3) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; few fine prominent (7.5YR 5/8) lamellae; few fine and medium mica flakes; very strongly acid; clear smooth boundary.

C3—56 to 62 inches; very pale brown (10YR 7/3) and olive yellow (2.5Y 6/6) loamy fine sand; single grain; loose; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragment content: 0 to 2 percent in the A, E, and B horizons; 0 to 15 percent in the C horizon
Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to slightly acid in the C horizon

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

E horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, silt loam, or sandy clay loam

Bt horizon (upper part):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, loam, silt loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red

Bt horizon (lower part):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, loam, silt loam, sandy clay loam, or clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

BC horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture—sand, loamy sand, loamy fine sand, or sandy loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of gray

Suffolk Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained

Slowest permeability class: Moderate
Slope: 0 to 10 percent

Associated Soils

- Emporia soils, which have more clay in the lower part of the subsoil and in the substratum than the Suffolk soils
- Faceville soils, which have more clay in the subsoil than the Suffolk soils
- Mattaponi soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soils
- Rumford soils, which have less clay in the subsoil than the Suffolk soils
- Slagle soils, which are moderately well drained

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Suffolk sandy loam, 0 to 2 percent slopes; about 1.4 miles north on Highway VA-721 from St. Stephens Church, 0.6 mile northeast along a farm lane, 210 feet northeast of the farm lane, in cropland:

Ap—0 to 8 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine vesicular pores; moderately acid; abrupt smooth boundary.

E—8 to 16 inches; yellowish brown (10YR 5/4) sandy loam; moderate medium granular structure; very friable; few very fine and medium roots; common very fine vesicular pores; moderately acid; clear smooth boundary.

BE—16 to 21 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; few very fine and medium roots; few very fine and fine vesicular pores; moderately acid; clear smooth boundary.

Bt1—21 to 28 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; common fine tubular pores; few distinct clay films on all faces of peds; partially decomposed tree roots 1 inch in diameter; moderately acid; clear smooth boundary.

Bt2—28 to 37 inches; strong brown (7.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common fine tubular pores; common distinct clay films on all faces of peds; moderately acid; abrupt smooth boundary.

BC—37 to 43 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; few fine vesicular pores; few distinct clay films on all faces of peds; moderately acid; abrupt smooth boundary.

C1—43 to 59 inches; yellowish brown (10YR 5/8) loamy sand; weak medium granular structure; very friable, nonsticky, nonplastic; few fine roots; many fine distinct white (10YR 8/2) sand lenses along root channels; few fine vesicular pores; moderately acid; gradual smooth boundary.

C2—59 to 65 inches; very pale brown (10YR 8/2), brownish yellow (10YR 6/6), and yellowish brown (10YR 5/8) sand; single grain; loose; moderately acid.

Range in Characteristics

Solum thickness: 30 to 50 inches
Rock fragment content: 0 to 5 percent in the A, E, and B horizons; 0 to 10 percent in the C horizon
Reaction: Extremely acid to moderately acid, except in limed areas

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

BE horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—7.5YR to 10YR; some pedons have a subhorizon with hue of 5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

C horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—2 to 8
Texture—dominantly sand, fine sand, loamy sand, or loamy fine sand; thin substrata of sandy loam occur in some pedons

Tarboro Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Sandy alluvial sediments
Drainage class: Somewhat excessively drained
Slowest permeability class: Rapid
Slope: 0 to 6 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained and have more clay in the subsoil than the Tarboro soils
- Bojac soils, which are well drained and have more clay in the subsoil than the Tarboro soils
- Munden and Tetotum soils, which are moderately well drained and have more clay in the subsoil than the Tarboro soils

Taxonomic Classification

Mixed, thermic Typic Udipsamments

Typical Pedon

Tarboro sand, 0 to 6 percent slopes, rarely flooded; 0.8 mile south of the junction of Highways VA-639 and VA-628 on Highway VA-628, about 150 feet west of Highway VA-628, in cropland:

Ap—0 to 7 inches; brown (10YR 4/3) sand; single grain; loose; common fine and medium roots; moderately acid; abrupt smooth boundary.
C1—7 to 22 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine and medium roots; moderately acid; gradual wavy boundary.
C2—22 to 32 inches; yellowish brown (10YR 5/6) sand; single grain; loose; 10 percent rounded quartz gravel; strongly acid; gradual wavy boundary.
C3—32 to 48 inches; yellowish brown (10YR 5/6) and reddish yellow (7.5YR 6/6) sand; single grain; loose; common reddish yellow (7.5YR 6/6) coatings on sand grains; strongly acid; gradual wavy boundary.
C4—48 to 58 inches; brownish yellow (10YR 6/6) and reddish yellow (7.5YR 6/6) sand; single grain; loose; strongly acid; gradual wavy boundary.
C5—58 to 62 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few reddish yellow (7.5YR 6/6) lamellae; some stratified fine gravel; strongly acid.

Range in Characteristics

Sandy material thickness: 80 inches or more
Reaction: Strongly acid to slightly acid

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 8
Chroma—2 to 6
Texture—sand, loamy sand, or loamy fine sand

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—sand, loamy sand, or loamy fine sand

Tetotum Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Moderately well drained
Slowest permeability class: Moderate
Slope: 0 to 10 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained
- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tetotum soils
- State soils, which are well drained
- Bojac soils, which are well drained and have less clay in the subsoil than the Tetotum soils
- Munden soils, which have less clay in the subsoil than the Tetotum soils
- Tarboro soils, which are somewhat excessively drained and have less clay than the Tetotum soils

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Tetotum fine sandy loam, 0 to 2 percent slopes, rarely flooded; about 0.5 mile east of the Lord Delaware Bridge on Highway VA-33, about 0.4 mile north on a farm lane to a farmhouse, 0.3 mile east on a field road, in cropland:

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam; weak medium granular structure; very friable, slightly sticky, slightly plastic; common fine and medium and few coarse roots; strongly acid; abrupt smooth boundary.

E—8 to 12 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak medium granular structure; very friable, slightly sticky, slightly plastic; common fine and medium and few coarse roots; strongly acid; gradual wavy boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and medium roots; few distinct clay films on all faces of peds; common medium faint light yellowish brown (10YR 6/4) and common fine distinct strong brown (7.5YR 5/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Bt2—18 to 25 inches; yellowish brown (10YR 5/8) loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine and medium roots; few distinct clay films on all faces of peds; common fine distinct strong brown (7.5YR 5/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Bt3—25 to 32 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few faint clay films on all faces of peds; common medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron and light brownish gray (2.5Y 6/2) iron depletions; strongly acid; gradual wavy boundary.

BC—32 to 49 inches; yellowish brown (10YR 5/8), light yellowish brown (10YR 6/4), and light brownish gray (2.5Y 6/2) sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few faint clay films on all faces of peds; strongly acid; gradual wavy boundary.

C1—49 to 56 inches; yellow (10YR 7/6) and yellowish brown (10YR 5/8) sand; single grain; loose; strongly acid; gradual wavy boundary.

C2—56 to 62 inches; yellowish brown (10YR 5/8) and yellow (10YR 7/6) sand; single grain; loose; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Reaction: Extremely acid to strongly acid, except in limed areas

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

E horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

BE horizon (if it occurs):
Hue—10YR or 2.5Y

Value—4 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, silt loam, or sandy clay loam

Bt horizon (upper part):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—4 to 8
Texture—loam or clay loam; subhorizons of silt loam, sandy clay loam, or silty clay loam occur in some pedons
Redoximorphic features—iron masses in shades of brown, red, or yellow

Bt horizon (lower part):
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—loam or clay loam; subhorizons of silt loam, sandy clay loam, or silty clay loam occur in some pedons
Redoximorphic features—iron masses in shades of brown, red, or yellow and iron depletions in shades of olive or gray

BC horizon:
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon (if it occurs):
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

C horizon:
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—commonly stratified sand, loamy sand, sandy loam, or fine sandy loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Tomotley Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Poorly drained
Slowest permeability class: Moderately slow
Slope: 0 to 2 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained

- Wahee soils, which are somewhat poorly drained and have more clay in the subsoil than the Tomotley soils
- Bibb and Kinston soils, which do not have developed subsoils
- Levy and Rappahannock soils, which are very poorly drained and have more clay in the subsoil than the Tomotley soils

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded; about 0.1 mile north on Highway VA-617 from the junction of Highways VA-614 and VA-617, about 75 feet northeast of Highway VA-617, in woodland:

A—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine subangular blocky structure; very friable, slightly sticky, slightly plastic; many fine and medium and common coarse roots; common fine and medium tubular pores; few medium faint brown (10YR 5/3) masses of oxidized iron; strongly acid; clear smooth boundary.

BEg—5 to 11 inches; grayish brown (10YR 5/2) loam; moderate fine subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine and medium and few coarse roots; common fine and medium and few coarse tubular pores; common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron; strongly acid; clear smooth boundary.

Btg1—11 to 19 inches; gray (10YR 5/1) sandy loam; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common fine and few medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly acid; gradual smooth boundary.

Btg2—19 to 33 inches; gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine and medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; few fine prominent strong brown (7.5YR 4/6) and common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly acid; gradual smooth boundary.

BCg—33 to 45 inches; light brownish gray (2.5Y 6/2) sandy clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few faint clay films on all faces of peds; few medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; 3 percent rounded quartz gravel; very strongly acid; gradual smooth boundary.

Cg—45 to 62 inches; gray (10YR 6/1) sandy loam; massive; common medium prominent yellowish brown (10YR 5/4) masses of oxidized iron; 5 percent rounded quartz gravel; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragment content: 0 to 5 percent throughout the profile
Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to moderately acid in the BC and C horizons

A horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 or 2
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Eg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BEg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, loam, or silt loam
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Btg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam; horizon is silt loam or silty clay loam in some pedons; horizon is sandy clay or clay below a depth of 40 inches in some pedons
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 8
Chroma—0 to 2
Texture—fine sandy loam, sandy loam, loam, clay loam, sandy clay loam, silt loam, or sandy clay; horizon commonly has thin strata or pockets of contrasting textures
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 8
Chroma—0 to 2
Texture—dominantly sandy loam, fine sandy loam, sandy clay loam, or clay loam; commonly stratified and ranging from sand to clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Wahee Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Clayey alluvial sediments
Drainage class: Somewhat poorly drained
Slowest permeability class: Slow
Slope: 0 to 2 percent

Associated Soils

- Augusta soils, which have less clay in the subsoil than the Wahee soils

- Craven soils, which are moderately well drained
- Roanoke soils, which are poorly drained
- Tetotum soils, which are moderately well drained and have less clay in the subsoil than the Wahee soils
- Tomotley soils, which are poorly drained and have less clay in the subsoil than the Wahee soils

Taxonomic Classification

Fine, mixed, semiactive, thermic Aeric Endoaquults

Typical Pedon

Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded; near King and Queen Court House fire station, 375 feet southwest of the junction of Highways VA-14 and VA-617 on Highway VA-14, about 300 feet southwest of Highway VA-14, just east of a power line, in cropland:

Ap—0 to 5 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; common fine and medium roots; moderately acid; abrupt smooth boundary.

E—5 to 11 inches; pale brown (10YR 6/3) sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; common fine and medium roots; few fine vesicular pores; common medium faint grayish brown (10YR 5/2) iron depletions; moderately acid; abrupt smooth boundary.

Btg1—11 to 19 inches; light brownish gray (10YR 6/2) clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and few medium roots; many faint clay films on all faces of peds; common fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; strongly acid; clear wavy boundary.

Btg2—19 to 38 inches; light brownish gray (10YR 6/2) clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine and medium roots; common faint clay films on all faces of peds; strongly acid; gradual wavy boundary.

Cg1—38 to 48 inches; grayish brown (2.5Y 5/2) loamy sand; massive; friable; few fine lenses of sandy clay; very strongly acid; gradual wavy boundary.

Cg2—48 to 62 inches; grayish brown (2.5Y 5/2) loamy coarse sand; single grain; loose; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Reaction: Very strongly acid to moderately acid in the A and E horizons, except in limed areas; extremely acid to strongly acid in the B, BC, and C horizons

Ap horizon:
Hue—neutral or 10YR or 2.5Y
Value—2 to 5
Chroma—0 to 3
Texture—sandy loam, fine sandy loam, loam, or silt loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

Bt horizon (if it occurs):
Hue—10YR or 2.5Y

Value—5 to 7
Chroma—3 to 8
Texture—sandy clay loam, clay loam, sandy clay, clay, or silty clay

Btg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—clay loam, sandy clay, clay, or silty clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

BCg horizon (if it occurs):
Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—fine sandy loam, sandy clay loam, clay loam, silty clay loam, or sandy clay
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Texture—sand to clay; commonly stratified
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray

Formation of the Soils

In this section the factors and processes that have affected the formation and morphology of the soils in King and Queen County are described.

Factors of Soil Formation

The characteristics of the soil at any given point depend upon the interaction of five soil-forming factors—parent material, climate, plants and animals, relief, and time *(7)*.

Climate, plants, and animals are the active forces of soil formation. They act on the parent material that has accumulated through the deposition of sediments and slowly change it into soil. Although all of the soil-forming factors affect the formation of every soil, the relative importance of each factor differs from place to place. In extreme cases one factor may dominate the formation of a soil and fix most of its properties. In general, however, the combined action of the five factors affect the character of each soil.

Parent Material

The unconsolidated mass from which a soil forms is the parent material. It is largely responsible for the chemical and mineralogical composition of the soil and the rate at which soil-forming processes take place.

The parent materials in King and Queen County are alluvial and have been transported and deposited by marine and fluvial action. Episodes of deposition have occurred at different geologic times, and sediments have combined from different sources. These different episodes have resulted in three distinct areas of soils in the survey area. The largest and oldest area consists of uplands at the highest elevations in the county. The loamy Emporia, Rumford, Slagle, and Suffolk soils formed in sediments in this area.

The second area consists of fluvial terraces along the rivers and streams. These terraces are at the lower elevations in the county. The loamy Bojac, Munden, State, and Tetotum soils and areas of the clayey Roanoke soils formed in the sediments of these terraces.

The third area consists of flood plains and marshes along the major rivers and streams. Bibb and Kinston soils formed in sediments on flood plains. Levy and Rappahannock soils are the dominant soils in marshes and swamps. These soils on flood plains and in marshes vary considerably in texture, have little soil development, and are continuously wet or flooded.

Climate

Climate affects the physical, chemical, and biological relationships in soils, principally through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residue through the solum. Temperature determines the type and rate of physical, chemical, and biological activities.

Precipitation causes the downward leaching of lime, free carbonates, and other

soluble minerals from upland soils, such as Emporia, Rumford, and Suffolk soils. Water percolating through the soil also moves clay from the surface layer to the subsoil. Soils in King and Queen County typically have more clay in the subsoil than in the surface layer. Exceptions are soils that formed in recent alluvium, in sand, or on very steep slopes. Alluvial areas are recharged with sediments from the surrounding eroded uplands. Examples of soils in such areas are Bibb, Kinston, and Levy.

Climate also influences the formation of blocky structure in the subsoil of well developed soils. The development of peds (aggregates) in the subsoil is caused partly by changes in volume of the soil mass that are primarily the result of alternating periods of wetting and drying.

Plant and Animal Life

Micro-organisms, vegetation, animals, and humans are major factors in the formation of soils. Vegetation is generally responsible for the amount of organic matter and nutrients and the color of the surface layer. Earthworms, cicada, and burrowing animals help to keep the soil open and porous. Micro-organisms decompose the vegetation and dead animal matter, thus releasing nutrients for plant food. Humans have changed the soil by mixing the upper layers.

Before human settlement, native vegetation, mainly oaks, hickories, and pines, was the major living organism affecting soil development. Most hardwoods use a large amount of the available calcium and other bases and constantly recycle them through leaf fall and decay. This process has prevented the soils in the survey area from becoming as leached as they would have been under a coniferous forest cover. In addition, since the soils form under forest vegetation, rapid decay of organic matter and constant recycling of nutrients have prevented organic matter accumulation in large quantities. The climate favors rapid decay of plant materials, oxidation of organic matter, and leaching of nutrients.

Humans have influenced soil development by clearing forests, cultivating crops, introducing new plants, and changing natural drainage. The most important changes caused by humans are the mixing of the upper layers of the soils to form a plow layer, the accelerated erosion caused by the cultivation of steep slopes, and changes in soil fertility from applications of lime and fertilizer.

Relief

The underlying geologic formations, the geologic history of the general region, and the effects of dissection by rivers and streams largely determine the relief of an area. Relief, or topography, affects the formation of soils by influencing the quantity of infiltrating water, the rate of surface water runoff, the rate of drainage in the soil, the soil temperature, and the rate of geologic erosion. Relief can alter the effects of climate on the parent material to the extent that several different kinds of soils may form from the same kind of parent material. Relief also affects the amount of radiant energy absorbed by the soils, which in turn affects the type of native vegetation on the soils.

Relief in the survey area ranges from nearly level to very steep. The nearly level soils are common on upland flats, on flood plains of streams, on terraces, and in marshes. Most of the nearly level soils are often wet because of frequent flooding or a seasonal high water table, and the surface water runoff is usually slow. These soils typically have a subsoil or substratum that is gray or mottled gray, and they are somewhat poorly drained or poorly drained. Roanoke and Levy soils are examples of these soils.

The gently sloping to very steep soils generally are well drained or moderately well drained. On the gently sloping and sloping soils, geologic erosion is slight, surface water runoff is medium or rapid, and water infiltration is optimum. The translocation of

bases and clay has usually occurred downward through the soil. The soils in such areas are mature and have well defined horizons. Craven and Emporia soils are examples of these soils. In the steeper areas, surface runoff is very rapid, water infiltration and the translocation of clay and bases through the soil are reduced, and the erosion hazard is severe. Soils that formed in these areas have weakly expressed horizons.

In upland areas where natural stream dissection has not created drainage outlets, moderately well drained soils have formed. Relief has modified the effects of the other soil-forming factors in these areas. For example, Emporia and Slagle soils formed in similar parent materials. Emporia soils are higher on the landscape and are well drained, and Slagle soils are lower on the landscape and are moderately well drained.

Time

As a factor of soil formation, time generally is related to the degree of development or degree of horizon differentiation within the soil. A soil that has little or no horizon development is considered a young soil, and one that has strongly developed horizons is considered an old or mature soil.

The oldest soils in King and Queen County are those that formed on well drained uplands at the higher elevations. These soils, such as Emporia and Suffolk soils, have a strong degree of horizon differentiation. Conversely, Bibb and Kinston soils formed in recent alluvium and show little or no horizon development. They are commonly stratified and have an irregular distribution of organic matter in the profile.

Morphology of the Soils

The results of the soil-forming factors are shown by the different layers, or soil horizons, in a soil profile. The soil profile extends from the surface down to materials that are little altered by the soil-forming processes.

Most soils have four major horizons—the A, E, B, and C horizons. These major horizons may be further subdivided by the use of numbers and letters to indicate changes within a horizon. For example, a Bt horizon is a B horizon that has an accumulation of clay.

The A horizon is the surface layer and has the largest accumulation of organic matter. It is also the layer of maximum leaching and elevation of clay and iron. If considerable leaching has taken place and organic matter has not darkened the material, this horizon is called an E horizon.

The B horizon underlies the A or E horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, and other compounds leached from the surface layer. In some soils the B horizon formed by alteration in place rather than by illuviation. This alteration can be caused by oxidation and reduction of iron or by the weathering of clay minerals. The B horizon commonly has blocky structure. It generally is firmer and lighter in color than the A and E horizons but darker than the C horizon.

The C horizon is below the B horizon or, in some cases, below the A horizon. It consists of materials that are little altered by the soil-forming processes, but it can be modified by weathering.

Processes of Soil Horizon Differentiation

In King and Queen County several processes are involved in the formation of soil horizons. Among these are the accumulation of organic matter, the leaching of soluble salts, the reduction and transfer of iron, the formation of soil structure, and the formation and translocation of clay minerals. These processes are continually taking

place, generally at the same time throughout the profile. Such processes have been going on for thousands of years.

The accumulation and incorporation of organic matter take place with the decomposition of plant residue. These additions darken the surface layer and help to form the A horizon. In many places, much of the surface layer has been eroded away or has been mixed with the materials from underlying layers through cultivation. Organic matter, once lost, normally takes a long time to replace. In King and Queen County, the organic matter content of the surface layer ranges from low in sandy soils, such as Tarboro soils, to high in marsh soils, such as Rappahannock soils. Most soils in the county have a low or medium amount of organic matter.

For soils to have distinct subsoil horizons, some of the lime and soluble salts must be leached before the translocation of clay minerals. Among the factors that affect this leaching are the kinds of salts originally present, the depth to which the soil solution percolates, and the texture of the soil profile.

Well drained and moderately well drained soils in the survey area have a yellowish brown to red subsoil. These colors are caused mainly by thin coatings of iron oxides on sand and silt grains, although in some soils the colors are inherited from the materials in which they formed. The structure is weak to moderate subangular blocky, and the subsoil contains more clay than the overlying surface horizons.

The reduction and transfer of iron, called gleying, takes place mainly in the wetter, more poorly drained soils. Moderately well drained soils, such as Slagle and Munden soils, have yellowish brown and strong brown redoximorphic features, which indicate the segregation of iron. Poorly drained soils, such as Roanoke and Tomotley soils, have a grayish subsoil and underlying materials, which indicate reduction and transfer of iron by removal in solution.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse-grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Corrosion Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crusts, soil. Relatively thin, somewhat continuous layers of the soil surface that often restrict water movement, air entry, and seedling emergence from the soil. They generally are less than 2 inches thick and are massive.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than

1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage

of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An

explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Masses. See Redoximorphic features.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates

less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features. The redoximorphic features are defined as follows:

1. *Redoximorphic concentrations.*—These are zones of apparent accumulation of iron-manganese oxides and include nodules and concretions, masses, and pore

linings. *Nodules and concretions* are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure. *Masses* are noncemented concentrations of substances within the soil matrix. *Pore linings* are zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. *Redoximorphic depletions.*—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out. They include iron depletions and clay depletions. *Iron depletions* are zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix. *Clay depletions* are zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).

3. *Reduced matrix.*—This is a soil matrix that has low chroma in situ but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (K_{sat}). The amount of water that would move vertically through a unit area of saturated soil in unit time under unit hydraulic gradient. Terms describing saturated hydraulic conductivity are measured in inches per hour or in micrometers per second or μm/sec. To convert μm/sec to in/hr multiply μm/sec by 0.1417; to convert in/hr to μm/sec multiply by 7.0572. Terms are as follows:

Very low	0.0 to 0.001417 in/hr	*(0.0 to 0.01 µm/sec)*
Low	0.001417 to 0.01417 in/hr	*(0.01 to 0.1 µm/sec)*
Moderately low	0.01417 to 0.1417 in/hr	*(0.1 to 1.0 µm/sec)*
Moderately high	0.1417 to 1.417 in/hr	*(1.0 to 10 µm/sec)*
High	1.417 to 14.17 in/hr	*(10 to 100 µm/sec)*
Very high	more than 14.17 in/hr	*(more than 100 µm/sec)*

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 10 percent
Strongly sloping	10 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 45 percent
Very steep	45 percent and higher

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to

calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a

field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1971-2000 at Walkerton, Virginia)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	47.4	26.3	36.8	73	-1	83	3.73	2.33	5.11	7	4.3
February-	51.6	28.3	40.0	77	4	115	3.14	1.70	4.50	6	4.1
March----	60.6	35.4	48.0	85	15	275	4.23	2.34	5.87	7	0.9
April----	71.2	43.6	57.4	91	25	522	3.02	1.83	4.13	6	0.0
May------	78.0	53.8	65.9	93	35	803	4.06	2.41	5.61	6	0.0
June-----	85.0	62.5	73.7	96	45	1,012	3.58	1.52	5.29	6	0.0
July-----	88.6	67.0	77.8	99	51	1,172	4.52	2.36	6.77	6	0.0
August---	87.1	65.4	76.2	98	49	1,121	3.53	1.68	5.19	5	0.0
September	81.3	58.5	69.9	95	39	898	3.96	1.60	5.80	5	0.0
October--	70.9	45.9	58.4	87	25	569	3.36	1.45	5.30	5	0.0
November-	61.1	37.0	49.0	81	16	293	3.18	1.75	4.51	6	0.2
December-	51.4	29.6	40.5	75	5	127	3.35	1.77	4.92	6	1.4
Yearly:											
Average	69.5	46.1	57.8	---	---	---	---	---	---	---	---
Extreme	102	-12	---	100	-4	---	---	---	---	---	---
Total--	---	---	---	---	---	6,990	43.65	37.32	49.02	71	11.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Walkerton, Virginia)

Probability	Temperature		
	24 OF or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 5	Apr. 17	Apr. 26
2 years in 10 later than--	Mar. 31	Apr. 13	Apr. 22
5 years in 10 later than--	Mar. 21	Apr. 4	Apr. 15
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 29	Oct. 15	Oct. 8
2 years in 10 earlier than--	Nov. 4	Oct. 20	Oct. 12
5 years in 10 earlier than-	Nov. 16	Oct. 30	Oct. 21

Table 3.—Growing Season

(Recorded in the period 1971-2000 at Walkerton, Virginia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	216	187	171
8 years in 10	224	195	177
5 years in 10	239	209	188
2 years in 10	253	223	200
1 year in 10	261	230	206

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1A	Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded	707	0.3
2A	Bojac loamy sand, 0 to 2 percent slopes, rarely flooded	852	0.4
2B	Bojac loamy sand, 2 to 6 percent slopes, rarely flooded	2,135	1.0
3A	Craven fine sandy loam, 0 to 2 percent slopes	519	0.2
3B	Craven fine sandy loam, 2 to 6 percent slopes	2,084	1.0
3C	Craven fine sandy loam, 6 to 10 percent slopes	1,876	0.9
4A	Emporia sandy loam, 0 to 2 percent slopes	4,212	2.0
4B	Emporia sandy loam, 2 to 6 percent slopes	39,592	19.0
4C	Emporia sandy loam, 6 to 10 percent slopes	6,952	3.3
5D	Emporia-Slagle-Rumford complex, 6 to 15 percent slopes	32,421	15.5
5E	Emporia-Slagle-Rumford complex, 15 to 50 percent slopes	36,248	17.4
6A	Faceville fine sandy loam, 0 to 2 percent slopes	179	*
6B	Faceville fine sandy loam, 2 to 6 percent slopes	201	*
7A	Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded	7,701	3.7
8A	Levy silt loam, 0 to 2 percent slopes, very frequently flooded	3,953	1.9
9A	Mattaponi fine sandy loam, 0 to 2 percent slopes	101	*
9B	Mattaponi fine sandy loam, 2 to 6 percent slopes	628	0.3
9C	Mattaponi fine sandy loam, 6 to 10 percent slopes	64	*
10A	Munden loamy sand, 0 to 2 percent slopes	786	0.4
10B	Munden loamy sand, 2 to 6 percent slopes	357	0.2
11A	Pits, gravel	177	*
12A	Rappahannock muck, 0 to 1 percent slopes, very frequently flooded	4,240	2.0
13A	Roanoke loam, 0 to 2 percent slopes, rarely flooded	571	0.3
14B	Rumford loamy sand, 0 to 6 percent slopes	5,595	2.7
14C	Rumford loamy sand, 6 to 10 percent slopes	923	0.4
15A	Slagle sandy loam, 0 to 2 percent slopes	2,470	1.2
15B	Slagle sandy loam, 2 to 6 percent slopes	16,333	7.8
15C	Slagle sandy loam, 6 to 10 percent slopes	3,247	1.6
16A	State fine sandy loam, 0 to 2 percent slopes	1,969	0.9
16B	State fine sandy loam, 2 to 6 percent slopes	3,606	1.7
17A	Suffolk sandy loam, 0 to 2 percent slopes	1,391	0.7
17B	Suffolk sandy loam, 2 to 6 percent slopes	7,692	3.7
17C	Suffolk sandy loam, 6 to 10 percent slopes	321	0.2
18B	Tarboro sand, 0 to 6 percent slopes, rarely flooded	3,362	1.6
19A	Tetotum fine sandy loam, 0 to 2 percent slopes, rarely flooded	3,004	1.4
19B	Tetotum fine sandy loam, 2 to 6 percent slopes, rarely flooded	3,640	1.7
19C	Tetotum fine sandy loam, 6 to 10 percent slopes	151	*
20A	Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded	1,340	0.6
21A	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded	191	*
W	Water	6,909	3.3
	Total	208,700	100.0

* Less than 0.1 percent.

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part I

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Virginia Soil Management Group	Barley	Corn	Grass-legume hay	Pasture
			Bu	Bu	Tons	AUM
1A:						
Augusta	4w	Z	50	100	---	5.0
2A:						
Bojac	2w	DD	70	85	3.5	6.0
2B:						
Bojac	2e	DD	70	85	3.5	6.0
3A:						
Craven	2w	HH	60	85	3.0	6.0
3B:						
Craven	2e	HH	60	85	3.0	6.0
3C:						
Craven	3e	HH	53	75	2.6	5.0
4A:						
Emporia	1	R	70	120	4.0	8.5
4B:						
Emporia	2e	R	70	120	4.0	8.5
4C:						
Emporia	3e	R	62	106	3.5	7.5
5D:						
Emporia	4e	R	56	96	3.2	7.0
Slagle	4e	K	64	104	3.6	6.0
Rumford	4e	DD	56	68	2.8	5.0
5E:						
Emporia	7e	R	---	---	---	5.5
Slagle	6e	K	---	---	---	6.0
Rumford	7e	DD	---	---	---	5.0
6A:						
Faceville	1	R	70	120	4.0	10.0
6B:						
Faceville	2e	R	70	120	4.0	10.0
7A:						
Kinston	6w	OO	---	---	---	---
Bibb	6w	EE	---	---	---	---
8A:						
Levy	7w	PP	---	---	---	---

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part I

Map symbol and soil name	Land capability	Virginia Soil Management Group	Barley	Corn	Grass-legume hay	Pasture
			Bu	Bu	Tons	AUM
9A:						
Mattaponi---------	2w	R	70	120	4.0	6.5
9B:						
Mattaponi---------	2e	R	70	120	4.0	6.5
9C:						
Mattaponi---------	3e	R	62	106	3.5	6.0
10A:						
Munden------------	2w	F	80	140	4.0	7.0
10B:						
Munden------------	2e	F	80	140	4.0	7.0
11A.						
Pits, gravel						
12A:						
Rappahannock------	7w	PP	---	---	---	---
13A:						
Roanoke-----------	4w	NN	30	65	---	5.2
14B:						
Rumford-----------	2s	DD	70	85	3.5	7.0
14C:						
Rumford-----------	3e	DD	62	75	3.1	6.0
15A:						
Slagle------------	2w	K	80	130	4.5	8.0
15B:						
Slagle------------	2e	K	80	130	4.5	8.0
15C:						
Slagle------------	3e	K	70	114	4.0	7.0
16A:						
State-------------	1	B	90	160	4.5	8.5
16B:						
State-------------	2e	B	90	160	4.5	8.5
17A:						
Suffolk-----------	1	T	70	110	3.5	6.0
17B:						
Suffolk-----------	2e	T	70	110	3.5	6.0
17C:						
Suffolk-----------	3e	T	62	97	3.1	5.5
18B:						
Tarboro-----------	3s	II	60	65	---	2.0
19A:						
Tetotum-----------	2w	K	80	130	4.5	8.0

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part I

Map symbol and soil name	Land capability	Virginia Soil Management Group	Barley	Corn	Grass-legume hay	Pasture
			Bu	Bu	Tons	AUM
19B:						
Tetotum-----------	2e	K	80	130	4.5	8.0
19C:						
Tetotum-----------	3e	K	70	114	4.0	7.5
20A:						
Tomotley----------	4w	OO	30	65	2.0	3.0
21A:						
Wahee-------------	4w	OO	30	65	2.0	3.0
W.						
Water						

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part II

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Virginia Soil Management Group	Peanuts	Soybeans	Wheat
			Lbs	Bu	Bu
1A:					
Augusta-----------	4w	Z	2800	35	40
2A:					
Bojac-------------	2w	DD	3700	25	56
2B:					
Bojac-------------	2e	DD	3700	25	56
3A:					
Craven------------	2w	HH	2900	25	48
3B:					
Craven------------	2e	HH	2900	25	48
3C:					
Craven------------	3e	HH	2500	22	42
4A:					
Emporia-----------	1	R	4000	40	56
4B:					
Emporia-----------	2e	R	4000	40	56
4C:					
Emporia-----------	3e	R	3500	35	49
5D:					
Emporia-----------	4e	R	3200	32	45
Slagle------------	4e	K	3600	32	51
Rumford-----------	4e	DD	3000	20	45
5E:					
Emporia-----------	7e	R	---	---	---
Slagle------------	6e	K	---	---	---
Rumford-----------	7e	DD	---	---	---
6A:					
Faceville---------	1	R	4000	40	56
6B:					
Faceville---------	2e	R	4000	40	56
7A:					
Kinston-----------	6w	OO	---	---	---
Bibb--------------	6w	EE	---	---	---
8A:					
Levy--------------	7w	PP	---	---	---

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part II

Map symbol and soil name	Land capability	Virginia Soil Management Group	Peanuts	Soybeans	Wheat
			Lbs	Bu	Bu
9A:					
Mattaponi---------	2w	R	---	40	56
9B:					
Mattaponi---------	2e	R	---	40	56
9C:					
Mattaponi---------	3e	R	---	35	49
10A:					
Munden------------	2w	F	---	40	64
10B:					
Munden------------	2e	F	---	40	64
11A.					
Pits, gravel					
12A:					
Rappahannock------	7w	PP	---	---	---
13A:					
Roanoke-----------	4w	NN	---	20	24
14B:					
Rumford-----------	2s	DD	3000	25	56
14C:					
Rumford-----------	3e	DD	2500	22	49
15A:					
Slagle------------	2w	K	3500	40	64
15B:					
Slagle------------	2e	K	3500	40	64
15C:					
Slagle------------	3e	K	3000	35	56
16A:					
State-------------	1	B	3300	50	64
16B:					
State-------------	2e	B	3300	50	64
17A:					
Suffolk-----------	1	T	4000	40	56
17B:					
Suffolk-----------	2e	T	4000	40	56
17C:					
Suffolk-----------	3e	T	3500	35	49
18B:					
Tarboro-----------	3s	II	2000	20	48
19A:					
Tetotum-----------	2w	K	4000	40	64

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture, Part II

Map symbol and soil name	Land capability	Virginia Soil Management Group	Peanuts	Soybeans	Wheat
			Lbs	Bu	Bu
19B:					
Tetotum-----------	2e	K	4000	40	64
19C:					
Tetotum-----------	3e	K	3500	35	56
20A:					
Tomotley----------	4w	OO	---	20	24
21A:					
Wahee-------------	4w	OO	---	20	24
W.					
Water					

Table 6.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Map unit name
1A	Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded (if drained)
3A	Craven fine sandy loam, 0 to 2 percent slopes
3B	Craven fine sandy loam, 2 to 6 percent slopes
4A	Emporia sandy loam, 0 to 2 percent slopes
4B	Emporia sandy loam, 2 to 6 percent slopes
6A	Faceville fine sandy loam, 0 to 2 percent slopes
6B	Faceville fine sandy loam, 2 to 6 percent slopes
9A	Mattaponi fine sandy loam, 0 to 2 percent slopes
9B	Mattaponi fine sandy loam, 2 to 6 percent slopes
10A	Munden loamy sand, 0 to 2 percent slopes
15A	Slagle sandy loam, 0 to 2 percent slopes
15B	Slagle sandy loam, 2 to 6 percent slopes
16A	State fine sandy loam, 0 to 2 percent slopes
16B	State fine sandy loam, 2 to 6 percent slopes
17A	Suffolk sandy loam, 0 to 2 percent slopes
17B	Suffolk sandy loam, 2 to 6 percent slopes
19A	Tetotum fine sandy loam, 0 to 2 percent slopes, rarely flooded
19B	Tetotum fine sandy loam, 2 to 6 percent slopes, rarely flooded

Table 7.—Hydric Soils List

Map symbol	Soil name
7A	Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded
8A	Levy silt loam, 0 to 2 percent slopes, very frequently flooded
12A	Rappahannock muck, 0 to 1 percent slopes, very frequently flooded
13A	Roanoke loam, 0 to 2 percent slopes, rarely flooded
20A	Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded

Table 8.—Agricultural Waste Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Augusta	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.32	Too acid	0.91
				Flooding	0.40
2A:					
Bojac	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.43	Too acid	0.99
				Flooding	0.40
2B:					
Bojac	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.43	Too acid	0.99
				Flooding	0.40
3A:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.86	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.86
3B:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.86	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.86
3C:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.86	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.86
4A:					
Emporia	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4B:					
Emporia-------------	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
4C:					
Emporia-------------	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
		Slope	0.01	Slope	0.01
5D:					
Emporia-------------	35	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.42
		Too acid	0.11	Slope	0.37
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
Slagle--------------	30	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slope	0.37	Too acid	0.91
		Too acid	0.32	Slope	0.37
Rumford-------------	15	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Slope	0.37	Too acid	0.91
		Too acid	0.32	Slope	0.37
5E:					
Emporia-------------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
Slagle--------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
Rumford-------------	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
6A:					
Faceville-----------	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
		Low adsorption	0.19		

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
6B:					
Faceville-----------	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
		Low adsorption	0.19		
7A:					
Kinston-------------	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Leaching	0.70	Flooding	1.00
		Flooding	0.60	Too acid	0.91
Bibb----------------	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00
		Runoff	0.40	Too acid	0.91
8A:					
Levy----------------	80	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
9A:					
Mattaponi-----------	80	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slow water movement	0.30	Slow water movement	0.22
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
9B:					
Mattaponi-----------	80	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slow water movement	0.30	Slow water movement	0.22
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
9C:					
Mattaponi-----------	80	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slow water movement	0.30	Slow water movement	0.22
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
10A:					
Munden--------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.11	Too acid	0.42

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10B:					
Munden	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.11	Too acid	0.42
11A:					
Pits, gravel	80	Not rated		Not rated	
12A:					
Rappahannock	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00
13A:					
Roanoke	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.89	Too acid	0.91
		Runoff	0.40	Slow water movement	0.78
14B:					
Rumford	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
14C:					
Rumford	80	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Slope	0.01
15A:					
Slagle	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
15B:					
Slagle	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
15C:					
Slagle	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Slope	0.01
16A:					
State	80	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16B:					
State	80	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
17A:					
Suffolk	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
17B:					
Suffolk	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
17C:					
Suffolk	80	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Slope	0.01	Slope	0.01
18B:					
Tarboro	80	Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	1.00	Droughty	1.00
		Leaching	0.45	Too acid	0.42
19A:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
				Flooding	0.40
19B:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
				Flooding	0.40
19C:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Slope	0.01
20A:					
Tomotley	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.73	Too acid	1.00
		Leaching	0.70	Flooding	0.40

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21A:					
Wahee	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00
		Runoff	0.40	Too acid	0.42
W:					
Water	100	Not rated		Not rated	

Table 8.—Agricultural Waste Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Augusta-------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Too acid	0.91	Depth to saturated zone	1.00
				Too acid	0.91
2A:					
Bojac---------------	80	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.99	Too acid	0.99
				Flooding	0.40
2B:					
Bojac---------------	80	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.99	Too acid	0.99
		Too steep for surface application	0.08	Flooding	0.40
3A:					
Craven--------------	80	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Depth to saturated zone	0.86	Depth to saturated zone	0.86
3B:					
Craven--------------	80	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Depth to saturated zone	0.86	Depth to saturated zone	0.86
3C:					
Craven--------------	80	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Too steep for surface application	1.00	Too acid	0.91
		Too acid	0.91	Depth to saturated zone	0.86
4A:					
Emporia-------------	80	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Depth to saturated zone	0.09	Too acid	0.42
				Depth to saturated zone	0.09

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4B:					
Emporia	80	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Depth to saturated zone	0.09	Too acid	0.42
		Too steep for surface application	0.08	Depth to saturated zone	0.09
					0
4C:					
Emporia	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.42	Too acid	0.42
		Too steep for sprinkler application	0.10	Too steep for surface application	0.22
5D:					
Emporia	35	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
		Too acid	0.42	Too acid	0.42
Slagle	30	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.91	Too steep for surface application	0.94
Rumford	15	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Filtering capacity	0.99	Too steep for surface application	0.94
		Too acid	0.91	Too acid	0.91
5E:					
Emporia	35	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.42	Too acid	0.42

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5E:					
Slagle	30	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
Rumford	15	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	0.91
6A:					
Faceville	80	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Low adsorption	0.19	Low adsorption	0.19
6B:					
Faceville	80	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Low adsorption	0.19	Low adsorption	0.19
7A:					
Kinston	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Too acid	0.91	Seepage	1.00
		Flooding	0.60	Depth to saturated zone	1.00
Bibb	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Too acid	0.91	Depth to saturated zone	1.00
		Flooding	0.60	Seepage	1.00
8A:					
Levy	80	Very limited		Very limited	
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
9A:					
Mattaponi-----------	80	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Slow water movement	0.22	Too acid	0.91
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
9B:					
Mattaponi-----------	80	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Slow water movement	0.22	Too acid	0.91
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
9C:					
Mattaponi-----------	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Slow water movement	0.22	Too steep for surface application	0.22
10A:					
Munden--------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.42	Depth to saturated zone	0.99
				Too acid	0.42
10B:					
Munden--------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.42	Depth to saturated zone	0.99
		Too steep for surface application	0.08	Too acid	0.42
11A:					
Pits, gravel--------	80	Not rated		Not rated	
12A:					
Rappahannock--------	80	Very limited		Very limited	
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
13A:					
Roanoke-------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.91	Seepage	1.00
		Slow water movement	0.78	Too acid	0.91

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
14B:					
Rumford	80	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.91	Too acid	0.91
14C:					
Rumford	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Filtering capacity	0.99	Too acid	0.91
		Too acid	0.91	Too steep for surface application	0.22
15A:					
Slagle	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.91	Depth to saturated zone	0.99
				Too acid	0.91
15B:					
Slagle	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.91	Depth to saturated zone	0.99
		Too steep for surface application	0.08	Too acid	0.91
15C:					
Slagle	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.91	Too acid	0.91
16A:					
State	80	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
				Too acid	0.91
16B:					
State	80	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.91
17A:					
Suffolk	80	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
				Too acid	0.42

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
17B:					
Suffolk-------------	80	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.42
17C:					
Suffolk-------------	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.42	Too acid	0.42
		Too steep for sprinkler application	0.10	Too steep for surface application	0.22
18B:					
Tarboro-------------	80	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Droughty	1.00	Too acid	0.42
		Too acid	0.42	Flooding	0.40
19A:					
Tetotum-------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.91	Depth to saturated zone	0.99
				Too acid	0.91
19B:					
Tetotum-------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.91	Depth to saturated zone	0.99
		Too steep for surface application	0.08	Too acid	0.91
19C:					
Tetotum-------------	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.91	Too acid	0.91
20A:					
Tomotley------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Too acid	1.00	Depth to saturated zone	1.00
				Too acid	1.00

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21A:					
Wahee	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
		Too acid	0.42	Too acid	0.42
W:					
Water	100	Not rated		Not rated	

Table 8.—Agricultural Waste Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Augusta	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.91
2A:					
Bojac	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Filtering capacity	0.99
		Slow water movement	0.32	Too acid	0.99
2B:					
Bojac	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Filtering capacity	0.99
		Slow water movement	0.32	Too acid	0.99
				Too steep for surface application	0.08
3A:					
Craven	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Slow water movement	0.94
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.07	Depth to saturated zone	0.86
3B:					
Craven	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Slow water movement	0.94
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.07	Depth to saturated zone	0.86
3C:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Slow water movement	0.94
		Slope	1.00	Too acid	0.91

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
4A:					
Emporia	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
		Too acid	0.07		
4B:					
Emporia	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
		Depth to saturated zone	0.09	Depth to saturated zone	0.09
		Too acid	0.07	Too steep for surface application	0.08
4C:					
Emporia	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too acid	0.42
		Depth to saturated zone	0.09	Too steep for sprinkler irrigation	0.22
5D:					
Emporia	35	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too steep for sprinkler irrigation	0.94
		Depth to saturated zone	0.09	Too acid	0.42
Slagle	30	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too steep for sprinkler irrigation	0.94
Rumford	15	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32	Filtering capacity	0.99
				Too steep for sprinkler irrigation	0.94

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
5E:					
Emporia	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	0.09	Too acid	0.42
Slagle	30	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
Rumford	15	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32	Too steep for sprinkler irrigation	1.00
				Filtering capacity	0.99
6A:					
Faceville	80	Very limited		Very limited	
		Slow water movement	1.00	Filtering capacity	0.99
				Too acid	0.91
				Low adsorption	0.19
6B:					
Faceville	80	Very limited		Very limited	
		Slow water movement	1.00	Filtering capacity	0.99
				Too acid	0.91
				Low adsorption	0.19
7A:					
Kinston	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.91
		Flooding	0.60	Flooding	0.60
Bibb	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.91
		Flooding	0.60	Flooding	0.60

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
8A:					
Levy	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
9A:					
Mattaponi	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
		Depth to saturated zone	0.09	Slow water movement	0.15
		Too acid	0.07	Depth to saturated zone	0.09
9B:					
Mattaponi	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
		Depth to saturated zone	0.09	Slow water movement	0.15
		Too acid	0.07	Depth to saturated zone	0.09
9C:					
Mattaponi	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too acid	0.91
		Depth to saturated zone	0.09	Too steep for sprinkler irrigation	0.22
10A:					
Munden	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	0.62	Too acid	0.42
10B:					
Munden	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	0.62	Too acid	0.42
				Too steep for surface application	0.08
11A:					
Pits, gravel	80	Not rated		Not rated	
12A:					
Rappahannock	80	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
13A:					
Roanoke	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.07	Slow water movement	0.60
14B:					
Rumford	80	Somewhat limited		Very limited	
		Slow water movement	0.32	Filtering capacity	0.99
				Too acid	0.91
14C:					
Rumford	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32	Filtering capacity	0.99
				Too acid	0.91
15A:					
Slagle	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too acid	0.91
15B:					
Slagle	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too acid	0.91
				Too steep for surface application	0.08
15C:					
Slagle	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too acid	0.91
16A:					
State	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Too acid	0.91
		Slow water movement	1.00		
		Too acid	0.07		

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
16B:					
State	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Too acid	0.91
		Slow water movement	1.00	Too steep for surface application	0.08
		Too acid	0.07		
17A:					
Suffolk	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
17B:					
Suffolk	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
				Too steep for surface application	0.08
17C:					
Suffolk	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too acid	0.42
				Too steep for sprinkler irrigation	0.22
18B:					
Tarboro	80	Not limited		Very limited	
				Filtering capacity	1.00
				Too acid	0.42
19A:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Too acid	0.91
19B:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Too acid	0.91
				Too steep for surface application	0.08
19C:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Depth to saturated zone	0.99
		Slope	1.00	Too acid	0.91

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
20A:					
Tomotley------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.42		
21A:					
Wahee---------------	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	0.94
		Too acid	0.07	Too acid	0.42
W:					
Water---------------	100	Not rated		Not rated	

Table 9.—Forestland Productivity

(Absence of an entry indicates that information was not available or that trees do not commonly grow on the soil)

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
1A:				
Augusta	American sycamore	90	100	American sycamore, cherrybark oak, loblolly pine, sweetgum, yellow-poplar
	loblolly pine	90	129	
	southern red oak	80	57	
	sweetgum	90	100	
	white oak	80	57	
2A:				
Bojac	loblolly pine	80	114	loblolly pine, sweetgum
	southern red oak	65	43	
	sweetgum	80	86	
2B:				
Bojac	loblolly pine	80	114	loblolly pine, sweetgum
	southern red oak	65	43	
	sweetgum	80	86	
3A:				
Craven	loblolly pine	88	129	loblolly pine
	southern red oak	90	72	
	white oak	90	72	
	willow oak	85	86	
3B:				
Craven	loblolly pine	88	129	loblolly pine
	southern red oak	90	72	
	white oak	90	72	
	willow oak	85	86	
3C:				
Craven	loblolly pine	88	129	loblolly pine
	southern red oak	90	72	
	white oak	90	72	
	willow oak	85	86	
4A:				
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
4B:				
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
4C:				
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
5D:				
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
5D:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
5E:				
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
6A:				
Faceville	loblolly pine	82	114	loblolly pine
	longleaf pine	65	72	
6B:				
Faceville	loblolly pine	82	114	loblolly pine
	longleaf pine	65	72	
7A:				
Kinston	cherrybark oak	95	57	American sycamore, cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, yellow-poplar
	eastern cottonwood	100	129	
	loblolly pine	100	129	
	sweetgum	95	114	
	white oak	90	57	
Bibb	Atlantic white cedar	---	---	eastern cottonwood, loblolly pine, sweetgum, yellow-poplar
	blackgum	---	---	
	loblolly pine	100	157	
	sweetgum	90	100	
	water oak	90	86	
	yellow-poplar	---	---	
8A:				
Levy	baldcypress	100	---	baldcypress, sweetgum
	sweetgum	85	86	
9A:				
Mattaponi	loblolly pine	80	114	loblolly pine, shortleaf pine
	sweetgum	76	72	
	Virginia pine	70	114	
	white oak	70	57	
9B:				
Mattaponi	loblolly pine	80	114	loblolly pine, shortleaf pine
	sweetgum	76	72	
	Virginia pine	70	114	
	white oak	70	57	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
9C:				
Mattaponi	loblolly pine	80	114	loblolly pine, shortleaf pine
	sweetgum	76	72	
	Virginia pine	70	114	
	white oak	70	57	
10A:				
Munden	loblolly pine	90	129	loblolly pine
	sweetgum	90	100	
	white oak	76	57	
10B:				
Munden	loblolly pine	90	129	loblolly pine
	sweetgum	90	100	
	white oak	76	57	
11A.				
Pits, gravel				
12A.				
Rappahannock				
13A:				
Roanoke	sweetgum	90	100	sweetgum
	white oak	75	57	
	willow oak	76	57	
14B:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
14C:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
15A:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
15B:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
15C:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
16A:				
State-------------------	loblolly pine-------	86	129	black walnut, loblolly pine, yellow-poplar
	southern red oak----	85	72	
	Virginia pine-------	85	129	
	yellow-poplar-------	100	114	
16B:				
State-------------------	loblolly pine-------	86	129	black walnut, loblolly pine, yellow-poplar
	southern red oak----	85	72	
	Virginia pine-------	85	129	
	yellow-poplar-------	100	114	
17A:				
Suffolk-----------------	loblolly pine-------	82	114	loblolly pine
	shortleaf pine------	72	114	
	southern red oak----	70	57	
17B:				
Suffolk-----------------	loblolly pine-------	82	114	loblolly pine
	shortleaf pine------	72	114	
	southern red oak----	70	57	
17C:				
Suffolk-----------------	loblolly pine-------	82	114	loblolly pine
	shortleaf pine------	72	114	
	southern red oak----	70	57	
18B:				
Tarboro-----------------	loblolly pine-------	72	100	loblolly pine, longleaf pine
19A:				
Tetotum-----------------	loblolly pine-------	88	129	loblolly pine
	southern red oak----	76	57	
	sweetgum------------	85	86	
19B:				
Tetotum-----------------	loblolly pine-------	88	129	loblolly pine
	southern red oak----	76	57	
	sweetgum------------	85	86	
19C:				
Tetotum-----------------	loblolly pine-------	88	129	loblolly pine
	southern red oak----	76	57	
	sweetgum------------	85	86	
20A:				
Tomotley----------------	loblolly pine-------	97	143	loblolly pine
	water oak-----------	78	72	
	willow oak----------	86	86	
21A:				
Wahee-------------------	loblolly pine-------	86	129	American sycamore, loblolly pine, sweetgum, water oak
	sweetgum------------	90	100	
W.				
Water				

Table 10.—Forestland Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Augusta----------	80	Slight		Moderately suited		Moderate	
				Wetness	0.50	Low strength	0.50
2A:							
Bojac-----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
2B:							
Bojac-----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
3A:							
Craven----------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
3B:							
Craven----------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
3C:							
Craven----------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
4A:							
Emporia---------	80	Slight		Well suited		Moderate	
						Low strength	0.50
4B:							
Emporia---------	80	Slight		Well suited		Moderate	
						Low strength	0.50
4C:							
Emporia---------	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
5D:							
Emporia---------	35	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Slagle----------	30	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Rumford---------	15	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Slope	0.50	Low strength	0.50
				Sandiness	0.50		

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
5E:							
Emporia----------	35	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Slagle-----------	30	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
Rumford----------	15	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
				Sandiness	0.50		
6A:							
Faceville--------	80	Slight		Well suited		Moderate	
						Low strength	0.50
6B:							
Faceville--------	80	Slight		Well suited		Moderate	
						Low strength	0.50
7A:							
Kinston----------	45	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
Bibb-------------	35	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
				Wetness	1.00		
8A:							
Levy-------------	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
		Low strength	0.50	Wetness	1.00		
9A:							
Mattaponi--------	80	Slight		Well suited		Moderate	
						Low strength	0.50
9B:							
Mattaponi--------	80	Slight		Well suited		Moderate	
						Low strength	0.50
9C:							
Mattaponi--------	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
10A:							
Munden-----------	80	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
10B:							
Munden-----------	80	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
11A:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12A:							
Rappahannock----	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
				Low strength	1.00		
13A:							
Roanoke---------	80	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
14B:							
Rumford---------	80	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
14C:							
Rumford---------	80	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Slope	0.50	Low strength	0.50
				Sandiness	0.50		
15A:							
Slagle----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
15B:							
Slagle----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
15C:							
Slagle----------	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
16A:							
State-----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
16B:							
State-----------	80	Slight		Well suited		Moderate	
						Low strength	0.50
17A:							
Suffolk---------	80	Slight		Well suited		Moderate	
						Low strength	0.50
17B:							
Suffolk---------	80	Slight		Well suited		Moderate	
						Low strength	0.50
17C:							
Suffolk---------	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
18B:							
Tarboro---------	80	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19A:							
Tetotum---------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Sandiness	0.50	Low strength	1.00
		Sandiness	0.50	Low strength	0.50		
19B:							
Tetotum---------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Sandiness	0.50	Low strength	1.00
		Sandiness	0.50	Low strength	0.50		
19C:							
Tetotum---------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Sandiness	0.50	Sandiness	0.50		
				Low strength	0.50		
20A:							
Tomotley--------	80	Slight		Poorly suited		Severe	
				Wetness	1.00	Low strength	1.00
				Low strength	0.50		
21A:							
Wahee-----------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
1A:							
Augusta---------	80	Slight		Slight		Moderately suited	
						Wetness	0.50
2A:							
Bojac-----------	80	Slight		Slight		Well suited	
2B:							
Bojac-----------	80	Slight		Slight		Well suited	
3A:							
Craven----------	80	Slight		Slight		Moderately suited	
						Low strength	0.50
3B:							
Craven----------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
3C:							
Craven----------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
4A:							
Emporia---------	80	Slight		Slight		Well suited	
4B:							
Emporia---------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
4C:							
Emporia---------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
5D:							
Emporia---------	35	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
Slagle----------	30	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
Rumford---------	15	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
5E:							
Emporia---------	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Slagle----------	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
5E:							
Rumford---------	15	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
6A:							
Faceville-------	80	Slight		Slight		Well suited	
6B:							
Faceville-------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
7A:							
Kinston---------	45	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
Bibb------------	35	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
8A:							
Levy------------	80	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
9A:							
Mattaponi-------	80	Slight		Slight		Well suited	
9B:							
Mattaponi-------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
9C:							
Mattaponi-------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
10A:							
Munden----------	80	Slight		Slight		Moderately suited	
						Sandiness	0.50
10B:							
Munden----------	80	Slight		Slight		Moderately suited	
						Sandiness	0.50
11A:							
Pits, gravel----	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock----	80	Very severe		Very severe		Poorly suited	
		Organic matter content high	1.00	Organic matter content high	1.00	Ponding	1.00
						Flooding	1.00
						Low strength	1.00
13A:							
Roanoke---------	80	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
14B:							
Rumford---------	80	Slight		Slight		Moderately suited	
						Sandiness	0.50
14C:							
Rumford---------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
15A:							
Slagle----------	80	Slight		Slight		Well suited	
15B:							
Slagle----------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
15C:							
Slagle----------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
16A:							
State-----------	80	Slight		Slight		Well suited	
16B:							
State-----------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
17A:							
Suffolk---------	80	Slight		Slight		Well suited	
17B:							
Suffolk---------	80	Slight		Slight		Well suited	
17C:							
Suffolk---------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
18B:							
Tarboro---------	80	Slight		Slight		Moderately suited	
						Sandiness	0.50
19A:							
Tetotum---------	80	Slight		Slight		Moderately suited	
						Sandiness	0.50
						Low strength	0.50
19B:							
Tetotum---------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Sandiness	0.50
						Low strength	0.50
19C:							
Tetotum---------	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Sandiness	0.50
						Low strength	0.50

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
20A:							
Tomotley--------	80	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
21A:							
Wahee-----------	80	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
1A:							
Augusta	80	Moderately suited		Moderately suited		Well suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
2A:							
Bojac	80	Well suited		Well suited		Well suited	
2B:							
Bojac	80	Well suited		Well suited		Well suited	
3A:							
Craven	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
3B:							
Craven	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
3C:							
Craven	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
4A:							
Emporia	80	Well suited		Well suited		Well suited	
4B:							
Emporia	80	Well suited		Well suited		Well suited	
4C:							
Emporia	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
5D:							
Emporia	35	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Slagle	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Rumford	15	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Slope	0.50	Sandiness	0.50
				Sandiness	0.50		
5E:							
Emporia	35	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
Slagle	30	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
5E:							
Rumford---------	15	Moderately suited		Unsuited		Moderately suited	
		Sandiness	0.50	Slope	1.00	Slope	0.50
				Sandiness	0.50	Sandiness	0.50
6A:							
Faceville-------	80	Well suited		Well suited		Well suited	
6B:							
Faceville-------	80	Well suited		Well suited		Well suited	
7A:							
Kinston---------	45	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
Bibb------------	35	Well suited		Well suited		Well suited	
8A:							
Levy------------	80	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
9A:							
Mattaponi-------	80	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
9B:							
Mattaponi-------	80	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
9C:							
Mattaponi-------	80	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
				Slope	0.50		
10A:							
Munden----------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
10B:							
Munden----------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
11A:							
Pits, gravel----	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock----	80	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Low strength	1.00
						Wetness	1.00
13A:							
Roanoke---------	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
14B:							
Rumford---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
14C:							
Rumford---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Slope	0.50	Sandiness	0.50
				Sandiness	0.50		
15A:							
Slagle----------	80	Well suited		Well suited		Well suited	
15B:							
Slagle----------	80	Well suited		Well suited		Well suited	
15C:							
Slagle----------	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
16A:							
State-----------	80	Well suited		Well suited		Well suited	
16B:							
State-----------	80	Well suited		Well suited		Well suited	
17A:							
Suffolk---------	80	Well suited		Well suited		Well suited	
17B:							
Suffolk---------	80	Well suited		Well suited		Well suited	
17C:							
Suffolk---------	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
18B:							
Tarboro---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
19A:							
Tetotum---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
						Sandiness	0.50
19B:							
Tetotum---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
						Sandiness	0.50
19C:							
Tetotum---------	80	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Slope	0.50	Low strength	0.50
				Sandiness	0.50	Sandiness	0.50
20A:							
Tomotley--------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
21A:							
Wahee-----------	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part IV

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Augusta	80	Well suited		Well suited	
2A:					
Bojac	80	Well suited		Well suited	
2B:					
Bojac	80	Well suited		Well suited	
3A:					
Craven	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
3B:					
Craven	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
3C:					
Craven	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
4A:					
Emporia	80	Well suited		Well suited	
4B:					
Emporia	80	Well suited		Well suited	
4C:					
Emporia	80	Well suited		Well suited	
5D:					
Emporia	35	Well suited		Well suited	
Slagle	30	Well suited		Well suited	
Rumford	15	Well suited		Well suited	
5E:					
Emporia	35	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Slagle	30	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Rumford	15	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
6A:					
Faceville	80	Well suited		Well suited	

Table 10.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
6B:					
Faceville	80	Well suited		Well suited	
7A:					
Kinston	45	Well suited		Well suited	
Bibb	35	Well suited		Well suited	
8A:					
Levy	80	Unsuited		Unsuited	
		Wetness	0.75	Wetness	1.00
		Stickiness; high plasticity index	0.50		
9A:					
Mattaponi	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
9B:					
Mattaponi	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
9C:					
Mattaponi	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
10A:					
Munden	80	Well suited		Well suited	
10B:					
Munden	80	Well suited		Well suited	
11A:					
Pits, gravel	80	Not rated		Not rated	
12A:					
Rappahannock	80	Unsuited		Unsuited	
		Wetness	0.75	Wetness	1.00
13A:					
Roanoke	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
14B:					
Rumford	80	Well suited		Well suited	
14C:					
Rumford	80	Well suited		Well suited	
15A:					
Slagle	80	Well suited		Well suited	
15B:					
Slagle	80	Well suited		Well suited	

Table 10.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
15C:					
Slagle	80	Well suited		Well suited	
16A:					
State	80	Well suited		Well suited	
16B:					
State	80	Well suited		Well suited	
17A:					
Suffolk	80	Well suited		Well suited	
17B:					
Suffolk	80	Well suited		Well suited	
17C:					
Suffolk	80	Well suited		Well suited	
18B:					
Tarboro	80	Well suited		Well suited	
19A:					
Tetotum	80	Well suited		Well suited	
19B:					
Tetotum	80	Well suited		Well suited	
19C:					
Tetotum	80	Well suited		Well suited	
20A:					
Tomotley	80	Well suited		Well suited	
21A:					
Wahee	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
W:					
Water	100	Not rated		Not rated	

Table 10.—Forestland Management, Part V

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Augusta	80	Moderate		Low	
		Texture/rock fragments	0.50		
2A:					
Bojac	80	High		Low	
		Texture/rock fragments	1.00		
2B:					
Bojac	80	High		Low	
		Texture/rock fragments	1.00		
3A:					
Craven	80	Moderate		Low	
		Texture/rock fragments	0.50		
3B:					
Craven	80	Moderate		Low	
		Texture/rock fragments	0.50		
3C:					
Craven	80	Moderate		Low	
		Texture/rock fragments	0.50		
4A:					
Emporia	80	Moderate		Low	
		Texture/rock fragments	0.50		
4B:					
Emporia	80	Moderate		Low	
		Texture/rock fragments	0.50		
4C:					
Emporia	80	Moderate		Low	
		Texture/rock fragments	0.50		
5D:					
Emporia	35	Moderate		Low	
		Texture/rock fragments	0.50		
Slagle	30	Moderate		Low	
		Texture/rock fragments	0.50		

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
5D:					
Rumford	15	High		Low	
		Texture/rock fragments	1.00		
5E:					
Emporia	35	Moderate		Low	
		Texture/rock fragments	0.50		
Slagle	30	Moderate		Low	
		Texture/rock fragments	0.50		
Rumford	15	High		Low	
		Texture/rock fragments	1.00		
6A:					
Faceville	80	Moderate		Low	
		Texture/rock fragments	0.50		
6B:					
Faceville	80	Moderate		Low	
		Texture/rock fragments	0.50		
7A:					
Kinston	45	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
Bibb	35	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
8A:					
Levy	80	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
9A:					
Mattaponi	80	Moderate		Low	
		Texture/rock fragments	0.50		
9B:					
Mattaponi	80	Moderate		Low	
		Texture/rock fragments	0.50		
9C:					
Mattaponi	80	Moderate		Low	
		Texture/rock fragments	0.50		

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
10A:					
Munden	80	High		Low	
		Texture/rock fragments	1.00		
10B:					
Munden	80	High		Low	
		Texture/rock fragments	1.00		
11A:					
Pits, gravel	80	Not rated		Not rated	
12A:					
Rappahannock	80	Low		High	
				Wetness	1.00
13A:					
Roanoke	80	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
14B:					
Rumford	80	High		Low	
		Texture/rock fragments	1.00		
14C:					
Rumford	80	High		Low	
		Texture/rock fragments	1.00		
15A:					
Slagle	80	Moderate		Low	
		Texture/rock fragments	0.50		
15B:					
Slagle	80	Moderate		Low	
		Texture/rock fragments	0.50		
15C:					
Slagle	80	Moderate		Low	
		Texture/rock fragments	0.50		
16A:					
State	80	Moderate		Low	
		Texture/rock fragments	0.50		
16B:					
State	80	Moderate		Low	
		Texture/rock fragments	0.50		

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
17A:					
Suffolk	80	Moderate		Low	
		Texture/rock fragments	0.50		
17B:					
Suffolk	80	High		Low	
		Texture/rock fragments	1.00		
17C:					
Suffolk	80	High		Low	
		Texture/rock fragments	1.00		
18B:					
Tarboro	80	High		Low	
		Texture/rock fragments	1.00		
19A:					
Tetotum	80	Moderate		Low	
		Texture/rock fragments	0.50		
19B:					
Tetotum	80	Moderate		Low	
		Texture/rock fragments	0.50		
19C:					
Tetotum	80	Moderate		Low	
		Texture/rock fragments	0.50		
20A:					
Tomotley	80	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
21A:					
Wahee	80	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
W:					
Water	100	Not rated		Not rated	

Table 11.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1A:							
Augusta---------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Depth to saturated zone	0.98	Too sandy	0.01	Too sandy	0.01
		Too sandy	0.01				
2A:							
Bojac-----------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.33	Too sandy	0.33
		Too sandy	0.33				
2B:							
Bojac-----------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.33	Slope	0.50
		Too sandy	0.33			Too sandy	0.33
3A:							
Craven----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
3B:							
Craven----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
						Slope	0.50
3C:							
Craven----------	80	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.94	Slow water movement	0.94	Slope	1.00
		Slope	0.01	Slope	0.01	Slow water movement	0.94
4A:							
Emporia---------	80	Not limited		Not limited		Not limited	
4B:							
Emporia---------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
4C:							
Emporia---------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
5D:							
Emporia---------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
Slagle----------	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.39	Slope	0.37	Slope	1.00
		Slope	0.37	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
5D:							
Rumford	15	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.81	Too sandy	0.81	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	0.81
5E:							
Emporia	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Slagle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Rumford	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.81	Too sandy	0.81	Too sandy	0.81
6A:							
Faceville	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
6B:							
Faceville	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Slope	0.50
						Too sandy	0.01
7A:							
Kinston	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
Bibb	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
8A:							
Levy	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
		Flooding	1.00			Flooding	1.00
		Ponding	1.00	Sodium content	1.00	Ponding	1.00
9A:							
Mattaponi	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
9B:							
Mattaponi	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.15	Slow water movement	0.15	Slope	0.50
						Slow water movement	0.15

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
9C:							
Mattaponi-------	80	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.15	Slow water movement	0.15	Slope	1.00
		Slope	0.01	Slope	0.01	Slow water movement	0.15
10A:							
Munden----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
10B:							
Munden----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
						Depth to saturated zone	0.39
11A:							
Pits, gravel----	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock----	80	Not rated		Not rated		Not rated	
13A:							
Roanoke---------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.60	Slow water movement	0.60
		Slow water movement	0.60				
14B:							
Rumford---------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Too sandy	0.81
						Slope	0.12
14C:							
Rumford---------	80	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.81	Too sandy	0.81	Slope	1.00
		Slope	0.01	Slope	0.01	Too sandy	0.81
15A:							
Slagle----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
15B:							
Slagle----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
						Depth to saturated zone	0.39
15C:							
Slagle----------	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.39

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
16A:							
State-----------	80	Not limited		Not limited		Not limited	
16B:							
State-----------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
17A:							
Suffolk---------	80	Not limited		Not limited		Not limited	
17B:							
Suffolk---------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
17C:							
Suffolk---------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
18B:							
Tarboro---------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00			Slope	0.12
19A:							
Tetotum---------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
19B:							
Tetotum---------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.19	Slope	0.50
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
19C:							
Tetotum---------	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.39
20A:							
Tomotley--------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Too sandy	0.01	Too sandy	0.01
		Too sandy	0.01				
21A:							
Wahee-----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.94	Slow water movement	0.94
		Slow water movement	0.94	Too sandy	0.01	Too sandy	0.01
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 11.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
1A:							
Augusta	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
		Too sandy	0.01	Too sandy	0.01		
2A:							
Bojac	80	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.33	Too sandy	0.33		
2B:							
Bojac	80	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.33	Too sandy	0.33		
3A:							
Craven	80	Not limited		Not limited		Not limited	
3B:							
Craven	80	Not limited		Not limited		Not limited	
3C:							
Craven	80	Not limited		Not limited		Somewhat limited	
						Slope	0.01
4A:							
Emporia	80	Not limited		Not limited		Not limited	
4B:							
Emporia	80	Not limited		Not limited		Not limited	
4C:							
Emporia	80	Not limited		Not limited		Somewhat limited	
						Slope	0.01
5D:							
Emporia	35	Not limited		Not limited		Somewhat limited	
						Slope	0.37
Slagle	30	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Depth to saturated zone	0.19
Rumford	15	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Slope	0.37
5E:							
Emporia	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
Slagle	30	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to saturated zone	0.19

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
5E:							
Rumford	15	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.81	Slope	1.00
		Too sandy	0.81	Slope	0.56		
6A:							
Faceville	80	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.01	Too sandy	0.01		
6B:							
Faceville	80	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.01	Too sandy	0.01		
7A:							
Kinston	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
Bibb	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
8A:							
Levy	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.60	Flooding	0.60	Depth to saturated zone	1.00
9A:							
Mattaponi	80	Not limited		Not limited		Not limited	
9B:							
Mattaponi	80	Not limited		Not limited		Not limited	
9C:							
Mattaponi	80	Not limited		Not limited		Somewhat limited	
						Slope	0.01
10A:							
Munden	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Depth to saturated zone	0.19
10B:							
Munden	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Depth to saturated zone	0.19
11A:							
Pits, gravel	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock	80	Not rated		Not rated		Not rated	

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
13A:							
Roanoke	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
14B:							
Rumford	80	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.81	Too sandy	0.81		
14C:							
Rumford	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Slope	0.01
15A:							
Slagle	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
15B:							
Slagle	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
15C:							
Slagle	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
						Slope	0.01
16A:							
State	80	Not limited		Not limited		Not limited	
16B:							
State	80	Not limited		Not limited		Not limited	
17A:							
Suffolk	80	Not limited		Not limited		Not limited	
17B:							
Suffolk	80	Not limited		Not limited		Not limited	
17C:							
Suffolk	80	Not limited		Not limited		Somewhat limited	
						Slope	0.01
18B:							
Tarboro	80	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Droughty	1.00
						Too sandy	0.50
19A:							
Tetotum	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
19B:							
Tetotum	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
19C:							
Tetotum---------	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
						Slope	0.01
20A:							
Tomotley--------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too sandy	0.01	Too sandy	0.01		
21A:							
Wahee-----------	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too sandy	0.01	Too sandy	0.01		
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 12.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
1A:							
Augusta---------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
2A:							
Bojac-----------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
2B:							
Bojac-----------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
3A:							
Craven----------	80	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
3B:							
Craven----------	80	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
3C:							
Craven----------	80	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
4A:							
Emporia---------	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.82		
4B:							
Emporia---------	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.82		
4C:							
Emporia---------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Depth to saturated zone	0.82	Slope	1.00
				Slope	0.01		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5D:							
Emporia	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to saturated zone	0.82	Slope	1.00
				Slope	0.37		
Slagle	30	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to saturated zone	0.39
Rumford	15	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
5E:							
Emporia	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.82		
Slagle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Rumford	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
6A:							
Faceville	80	Not limited		Not limited		Not limited	
6B:							
Faceville	80	Not limited		Not limited		Not limited	
7A:							
Kinston	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Bibb	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8A:							
Levy	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
9A:							
Mattaponi	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.82	Shrink-swell	0.50
				Shrink-swell	0.50		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
9B:							
Mattaponi	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.82	Shrink-swell	0.50
				Shrink-swell	0.50		
9C:							
Mattaponi	80	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.82	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
10A:							
Munden	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
10B:							
Munden	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
11A:							
Pits, gravel	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
13A:							
Roanoke	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
14B:							
Rumford	80	Not limited		Not limited		Not limited	
14C:							
Rumford	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
15A:							
Slagle	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
15B:							
Slagle	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
15C:							
Slagle	80	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.39
16A:							
State	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
16B:							
State	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
17A:							
Suffolk	80	Not limited		Not limited		Not limited	
17B:							
Suffolk	80	Not limited		Not limited		Not limited	
17C:							
Suffolk	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
18B:							
Tarboro	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
19A:							
Tetotum	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
19B:							
Tetotum	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
19C:							
Tetotum	80	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.39
20A:							
Tomotley	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
21A:							
Wahee	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
W:							
Water	100	Not rated		Not rated		Not rated	

Table 12.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Augusta	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Cutbanks cave	0.10		
		Flooding	0.40				
2A:							
Bojac	80	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
2B:							
Bojac	80	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
3A:							
Craven	80	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50	Depth to saturated zone	0.99		
				Too clayey	0.28		
3B:							
Craven	80	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50	Depth to saturated zone	0.99		
				Too clayey	0.28		
3C:							
Craven	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Slope	0.01
		Shrink-swell	0.50	Depth to saturated zone	0.99		
		Slope	0.01	Too clayey	0.28		
4A:							
Emporia	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.82		
				Cutbanks cave	0.10		
4B:							
Emporia	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.82		
				Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
4C:							
Emporia	80	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	0.82	Slope	0.01
		Slope	0.01	Cutbanks cave	0.10		
				Slope	0.01		
5D:							
Emporia	35	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	0.82	Slope	0.37
		Slope	0.37	Slope	0.37		
				Cutbanks cave	0.10		
Slagle	30	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	Depth to saturated zone	1.00	Slope	0.37
		Depth to saturated zone	0.19	Slope	0.37	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
Rumford	15	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	Cutbanks cave	1.00	Slope	0.37
				Slope	0.37		
5E:							
Emporia	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	0.82		
				Cutbanks cave	0.10		
Slagle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
Rumford	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00		
6A:							
Faceville	80	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
6B:							
Faceville	80	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
7A:							
Kinston	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7A:							
Bibb------------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
8A:							
Levy------------	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
9A:							
Mattaponi-------	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.82		
		Shrink-swell	0.50	Too clayey	0.50		
				Cutbanks cave	0.10		
9B:							
Mattaponi-------	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.82		
		Shrink-swell	0.50	Too clayey	0.50		
				Cutbanks cave	0.10		
9C:							
Mattaponi-------	80	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	0.82	Slope	0.01
		Shrink-swell	0.50	Too clayey	0.50		
		Slope	0.01	Cutbanks cave	0.10		
10A:							
Munden----------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	1.00		
10B:							
Munden----------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	1.00		
11A:							
Pits, gravel----	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock----	80	Very limited		Very limited		Not rated	
		Ponding	1.00	Ponding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Flooding	1.00	Organic matter content	1.00		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
13A:							
Roanoke	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50	Too clayey	0.12		
14B:							
Rumford	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
14C:							
Rumford	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.01	Cutbanks cave	1.00	Slope	0.01
				Slope	0.01		
15A:							
Slagle	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
15B:							
Slagle	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
15C:							
Slagle	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Slope	0.01	Cutbanks cave	0.10	Slope	0.01
				Slope	0.01		
16A:							
State	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
16B:							
State	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
17A:							
Suffolk	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
17B:							
Suffolk	80	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
17C:							
Suffolk	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.01	Cutbanks cave	1.00	Slope	0.01
				Slope	0.01		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
18B:							
Tarboro----------	80	Somewhat limited		Very limited		Very limited	
		Flooding	0.40	Cutbanks cave	1.00	Droughty	1.00
						Too sandy	0.50
19A:							
Tetotum----------	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Flooding	0.40	Cutbanks cave	1.00		
		Depth to saturated zone	0.19				
19B:							
Tetotum----------	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Flooding	0.40	Cutbanks cave	1.00		
		Depth to saturated zone	0.19				
19C:							
Tetotum----------	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	1.00	Slope	0.01
		Slope	0.01	Slope	0.01		
20A:							
Tomotley---------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Cutbanks cave	0.10		
21A:							
Wahee------------	80	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Cutbanks cave	1.00		
		Shrink-swell	0.50	Too clayey	0.50		
W:							
Water------------	100	Not rated		Not rated		Not rated	

Table 13.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
1A:					
Augusta	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
2A:					
Bojac	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Flooding	0.40
		Flooding	0.40		
2B:					
Bojac	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Flooding	0.40
		Flooding	0.40	Slope	0.32
3A:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
3B:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
3C:					
Craven	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
4A:					
Emporia	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.50
		Slow water movement	0.50		
4B:					
Emporia	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.50
				Slope	0.32
		Slow water movement	0.50		
4C:					
Emporia	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.50
		Slow water movement	0.50		
		Slope	0.01		
5D:					
Emporia	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.50
		Slow water movement	0.50		
		Slope	0.37		
Slagle	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.75
		Slow water movement	0.99	Seepage	0.50
		Slope	0.37		0
Rumford	15	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slope	0.37		
5E:					
Emporia	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.50
		Slope	1.00		
		Slow water movement	0.50		
Slagle	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.75
		Slope	1.00		
		Slow water movement	0.99	Seepage	0.50
Rumford	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
6A:					
Faceville-----------	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
6B:					
Faceville-----------	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
7A:					
Kinston-------------	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
Bibb----------------	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
8A:					
Levy----------------	80	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
9A:					
Mattaponi-----------	80	Very limited		Not limited	
		Depth to saturated zone	1.00		
		Slow water movement	1.00		
9B:					
Mattaponi-----------	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.32
		Slow water movement	1.00		
9C:					
Mattaponi-----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00		
		Slope	0.01		
10A:					
Munden--------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
10B:					
Munden--------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
11A:					
Pits, gravel--------	80	Not rated		Not rated	
12A:					
Rappahannock--------	80	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
13A:					
Roanoke-------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
				Flooding	0.40
		Seepage, bottom layer	1.00		
14B:					
Rumford-------------	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.08
14C:					
Rumford-------------	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slope	0.01		
15A:					
Slagle--------------	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slow water movement	0.99	Seepage	0.50
15B:					
Slagle--------------	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slow water movement	0.99	Seepage	0.50
				Slope	0.32
15C:					
Slagle--------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.75
		Slow water movement	0.99		
				Seepage	0.50
		Slope	0.01		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
16A:					
State	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
		Depth to saturated zone	0.40		
16B:					
State	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.50		
		Depth to saturated zone	0.40		
17A:					
Suffolk	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
17B:					
Suffolk	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.50		
17C:					
Suffolk	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slow water movement	0.50		
		Slope	0.01		
18B:					
Tarboro	80	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Flooding	0.40
		Seepage, bottom layer	1.00	Slope	0.08
		Flooding	0.40		
19A:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Flooding	0.40
		Slow water movement	0.50		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
19B:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Flooding	0.40
		Slow water movement	0.50		
19C:					
Tetotum	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slow water movement	0.50		
20A:					
Tomotley	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.99
				Flooding	0.40
		Flooding	0.40		
21A:					
Wahee	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Flooding	0.40
		Seepage, bottom layer	1.00		
W:					
Water	100	Not rated		Not rated	

Table 13.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Augusta----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
2A:							
Bojac-----------	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00		
		Flooding	0.40	Flooding	0.40		
2B:							
Bojac-----------	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00		
		Flooding	0.40	Flooding	0.40		
3A:							
Craven----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to saturated zone	0.47
		Seepage, bottom layer	1.00				
3B:							
Craven----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Depth to saturated zone	0.47
		Seepage, bottom layer	1.00				
3C:							
Craven----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.01	Depth to saturated zone	0.47
		Seepage, bottom layer	1.00			Slope	0.01
4A:							
Emporia---------	80	Somewhat limited		Not limited		Not limited	
		Depth to saturated zone	0.09				

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4B:							
Emporia	80	Somewhat limited		Not limited		Not limited	
		Depth to saturated zone	0.09				
4C:							
Emporia	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.09	Slope	0.01	Slope	0.01
		Slope	0.01				
5D:							
Emporia	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
		Depth to saturated zone	0.09				
Slagle	30	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Slope	0.37	Slope	0.37	Slope	0.37
Rumford	15	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
5E:							
Emporia	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.09				
Slagle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
Rumford	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
6A:							
Faceville	80	Somewhat limited		Not limited		Not limited	
		Too clayey	0.50				
6B:							
Faceville	80	Somewhat limited		Not limited		Not limited	
		Too clayey	0.50				
7A:							
Kinston	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
7A:							
Bibb	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
8A:							
Levy	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
9A:							
Mattaponi	80	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
		Depth to saturated zone	0.09			Hard to compact	1.00
9B:							
Mattaponi	80	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
		Depth to saturated zone	0.09			Hard to compact	1.00
9C:							
Mattaponi	80	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.01	Too clayey	1.00
		Depth to saturated zone	0.09			Hard to compact	1.00
		Slope	0.01			Slope	0.01
10A:							
Munden	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00			Depth to saturated zone	0.86
10B:							
Munden	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00			Depth to saturated zone	0.86
11A:							
Pits, gravel	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
13A:							
Roanoke	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Seepage, bottom layer	1.00			Hard to compact	1.00
14B:							
Rumford	80	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
14C:							
Rumford	80	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.01	Slope	0.01	Slope	0.01
15A:							
Slagle	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
15B:							
Slagle	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
15C:							
Slagle	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Slope	0.01	Slope	0.01	Slope	0.01
16A:							
State	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50				
16B:							
State	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50				
17A:							
Suffolk	80	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
17B:							
Suffolk	80	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
17C:							
Suffolk	80	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Slope	0.01	Slope	0.01
		Slope	0.01				
18B:							
Tarboro	80	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40				
19A:							
Tetotum	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Seepage, bottom layer	1.00	Flooding	0.40		
		Flooding	0.40				
19B:							
Tetotum	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Seepage, bottom layer	1.00	Flooding	0.40		
		Flooding	0.40				
19C:							
Tetotum	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Seepage, bottom layer	1.00	Slope	0.01	Slope	0.01
		Slope	0.01				
20A:							
Tomotley	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40		
21A:							
Wahee	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Seepage	1.00	Too clayey	1.00
		Seepage, bottom layer	1.00	Flooding	0.40	Hard to compact	1.00
W:							
Water	100	Not rated		Not rated		Not rated	

Table 14.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1A:					
Augusta	80	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
2A:					
Bojac	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.08
2B:					
Bojac	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.08
3A:					
Craven	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.10
3B:					
Craven	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.10
3C:					
Craven	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.10
4A:					
Emporia	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
4B:					
Emporia	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
4C:					
Emporia	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
5D:					
Emporia	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
5D:					
Slagle	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rumford	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
5E:					
Emporia	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Slagle	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rumford	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
6A:					
Faceville	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
6B:					
Faceville	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7A:					
Kinston	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bibb	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.51
8A:					
Levy	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
9A:					
Mattaponi	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
9B:					
Mattaponi	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
9C:					
Mattaponi	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
10A:					
Munden	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.45
10B:					
Munden	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.45
11A:					
Pits, gravel	80	Not rated		Not rated	
12A:					
Rappahannock	80	Not rated		Fair	
				Thickest layer	0.00
				Bottom layer	0.02
13A:					
Roanoke	80	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
14B:					
Rumford	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
14C:					
Rumford	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
15A:					
Slagle	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
15B:					
Slagle	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
15C:					
Slagle	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
16A:					
State	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
16B:					
State	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
17A:					
Suffolk-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
17B:					
Suffolk-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
17C:					
Suffolk-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
18B:					
Tarboro-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.34
		Thickest layer	0.00	Bottom layer	0.69
19A:					
Tetotum-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.51
19B:					
Tetotum-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.51
19C:					
Tetotum-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.51
20A:					
Tomotley------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
21A:					
Wahee---------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.10
W:					
Water---------------	100	Not rated		Not rated	

Table 14.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1A:							
Augusta----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.14
		Too acid	0.54	Wetness depth	0.14	Too acid	0.98
2A:							
Bojac------------	80	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.92
		Organic matter content low	0.12				
		Too acid	0.39				
2B:							
Bojac------------	80	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.92
		Organic matter content low	0.12				
		Too acid	0.39				
3A:							
Craven-----------	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Wetness depth	0.89	Wetness depth	0.89
				Shrink-swell	0.98	Too acid	0.98
		Too acid	0.54				
3B:							
Craven-----------	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Wetness depth	0.89	Wetness depth	0.89
				Shrink-swell	0.98	Too acid	0.98
		Too acid	0.54				
3C:							
Craven-----------	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Wetness depth	0.89	Wetness depth	0.89
				Shrink-swell	0.98	Too acid	0.98
		Too acid	0.54				
4A:							
Emporia----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				
4B:							
Emporia----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
4C:							
Emporia	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				
5D:							
Emporia	35	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.63
						Too acid	0.98
		Too acid	0.54				
Slagle	30	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.53	Wetness depth	0.53
						Slope	0.63
		Too acid	0.54			Too acid	0.98
Rumford	15	Poor		Good		Fair	
		Wind erosion	0.00			Slope	0.63
		Organic matter content low	0.08			Too acid	0.98
						Too sandy	0.99
		Too acid	0.54				
5E:							
Emporia	35	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Low strength	0.00	Too acid	0.98
		Too acid	0.54				
Slagle	30	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
				Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.54			Too acid	0.98
Rumford	15	Poor		Poor		Poor	
		Wind erosion	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.08			Too acid	0.98
						Too sandy	0.99
		Too acid	0.54				
6A:							
Faceville	80	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.78	Too clayey	0.00
		Organic matter content low	0.02			Too acid	0.98
		Too acid	0.54				
6B:							
Faceville	80	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.78	Too clayey	0.00
		Organic matter content low	0.02			Too acid	0.98
		Too acid	0.54				
7A:							
Kinston	45	Fair		Poor		Poor	
		Too acid	0.54	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too acid	0.98

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
7A:							
Bibb	35	Fair		Poor		Poor	
		Too acid	0.54	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.92
						Too acid	0.98
8A:							
Levy	80	Poor		Poor		Poor	
		Sodium content	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too clayey	0.00	Low strength	0.00	Sodium content	0.00
		Too acid	0.50	Shrink-swell	0.12	Too clayey	0.00
9A:							
Mattaponi	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Too acid	0.68
		Too acid	0.16				
9B:							
Mattaponi	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Too acid	0.68
		Too acid	0.16				
9C:							
Mattaponi	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Too acid	0.68
		Too acid	0.16				
10A:							
Munden	80	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.53	Wetness depth	0.53
		Organic matter content low	0.02				
		Too acid	0.54				
10B:							
Munden	80	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.53	Wetness depth	0.53
		Organic matter content low	0.02				
		Too acid	0.54				
11A:							
Pits, gravel	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock	80	Fair		Poor		Not rated	
		Salinity	0.97	Wetness depth	0.00		

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
13A:							
Roanoke	80	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.16	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.50	Shrink-swell	0.96	Too acid	0.98
14B:							
Rumford	80	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Organic matter content low	0.08			Too sandy	0.99
		Too acid	0.54				
14C:							
Rumford	80	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Organic matter content low	0.08			Too sandy	0.99
		Too acid	0.54				
15A:							
Slagle	80	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.53	Wetness depth	0.53
						Too acid	0.98
		Too acid	0.54				
15B:							
Slagle	80	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.53	Wetness depth	0.53
						Too acid	0.98
		Too acid	0.54				
15C:							
Slagle	80	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.53	Wetness depth	0.53
						Too acid	0.98
		Too acid	0.54				
16A:							
State	80	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
16B:							
State	80	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
17A:							
Suffolk	80	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.84				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
17B:							
Suffolk----------	80	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.84				
17C:							
Suffolk----------	80	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.84				
18B:							
Tarboro----------	80	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Droughty	0.00				
19A:							
Tetotum----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too acid	0.98
		Too acid	0.54				
19B:							
Tetotum----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too acid	0.98
		Too acid	0.54				
19C:							
Tetotum----------	80	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too acid	0.98
		Too acid	0.54				
20A:							
Tomotley---------	80	Fair		Poor		Poor	
		Too acid	0.12	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.88			Too acid	0.59
21A:							
Wahee------------	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Shrink-swell	0.97	Too acid	0.98
		Too acid	0.50				
W:							
Water------------	100	Not rated		Not rated		Not rated	

Table 15.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Augusta---------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Piping	0.05	Cutbanks cave	0.10
				Seepage	0.01		
2A:							
Bojac-----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
2B:							
Bojac-----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
3A:							
Craven----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
				Seepage	0.10	Depth to saturated zone	0.06
				Piping	0.01		
3B:							
Craven----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
				Seepage	0.10	Depth to saturated zone	0.06
				Piping	0.01		
3C:							
Craven----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
				Seepage	0.10	Depth to saturated zone	0.06
				Piping	0.01		
4A:							
Emporia---------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
				Depth to saturated zone	0.09		
4B:							
Emporia---------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
				Depth to saturated zone	0.09		
4C:							
Emporia---------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
				Depth to saturated zone	0.09		

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
5D:							
Emporia----------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
		Slope	0.01	Depth to saturated zone	0.09		
Slagle----------	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.01				
Rumford---------	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
5E:							
Emporia----------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
		Slope	0.64	Depth to saturated zone	0.09		
Slagle----------	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.12				
Rumford---------	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.64				
6A:							
Faceville-------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
6B:							
Faceville-------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
7A:							
Kinston---------	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.07		
Bibb------------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.51		
8A:							
Levy------------	80	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
9A:							
Mattaponi-------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.05	Hard to pack	0.61	Depth to water	1.00
				Depth to saturated zone	0.09		

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
9B:							
Mattaponi-------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.05	Hard to pack	0.61	Depth to water	1.00
				Depth to saturated zone	0.09		
9C:							
Mattaponi-------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.05	Hard to pack	0.61	Depth to water	1.00
				Depth to saturated zone	0.09		
10A:							
Munden----------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.45	Depth to saturated zone	0.01
10B:							
Munden----------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.45	Depth to saturated zone	0.01
11A:							
Pits, gravel----	80	Not rated		Not rated		Not rated	
12A:							
Rappahannock----	80	Somewhat limited		Not rated		Somewhat limited	
		Seepage	0.70			Salinity and saturated zone	0.35
						Slow refill	0.30
						Cutbanks cave	0.10
13A:							
Roanoke---------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.01		
14B:							
Rumford---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
14C:							
Rumford---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
15A:							
Slagle----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.99	Depth to water	1.00
15B:							
Slagle----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.99	Depth to water	1.00

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15C:							
Slagle----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.99	Depth to water	1.00
16A:							
State-----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
16B:							
State-----------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
17A:							
Suffolk---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
17B:							
Suffolk---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
17C:							
Suffolk---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
18B:							
Tarboro---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.69	Depth to water	1.00
19A:							
Tetotum---------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.51	Depth to saturated zone	0.01
19B:							
Tetotum---------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.51	Depth to saturated zone	0.01
19C:							
Tetotum---------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.51	Depth to saturated zone	0.01
20A:							
Tomotley--------	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Seepage	0.04		
21A:							
Wahee-----------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.10		
				Piping	0.04		
W:							
Water-----------	100	Not rated		Not rated		Not rated	

Table 16.—Engineering Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1A:												
Augusta---------	0-9	Fine sandy loam, sandy loam, loam, silt loam	ML, SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	50-100	25-90	17-35	2-13
	9-60	Clay loam, sandy clay loam, loam	CL, SC-SM	A-6, A-7-6	0	0	90-100	85-100	70-100	30-80	29-44	13-25
	60-70	Sandy clay loam, clay loam, sandy loam	SC-SM, CL	A-2-4, A-4, A-6	0	0	90-100	85-100	50-100	25-80	20-44	6-25
2A:												
Bojac-----------	0-10	Loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam	SM, SC-SM	A-2-4	0	0	95-100	92-100	50-95	15-75	15-19	NP-3
	10-49	Fine sandy loam, loam, sandy loam	SC-SM	A-2-4, A-4	0	0	95-100	92-100	55-95	25-75	22-28	5-10
	49-62	Loamy sand, loamy fine sand	SC-SM	A-1-b, A-2-4	0	0	95-100	92-100	45-85	15-45	13-17	NP-1
2B:												
Bojac-----------	0-10	Loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam	SM, SC-SM	A-2-4	0	0	95-100	92-100	50-95	15-75	15-19	NP-3
	10-49	Fine sandy loam, loam, sandy loam	SC-SM	A-2-4, A-4	0	0	95-100	92-100	55-95	25-75	22-28	5-10
	49-62	Loamy sand, loamy fine sand	SC-SM	A-1-b, A-2-4	0	0	95-100	92-100	45-85	15-45	13-17	NP-1

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
3A:												
Craven----------	0-6	Fine sandy loam, loam, silt loam, very fine sandy loam	CL, ML, SC, SM	A-4	0	0	97-100	95-100	65-100	40-90	19-41	3-19
	6-31	Clay, clay loam, silty clay, silty clay loam	CL, CH	A-7	0	0	97-100	95-100	85-100	65-95	43-67	25-44
	31-45	Sandy clay loam, clay loam, clay, sandy clay, silty clay, silty clay loam	ML, CL, CH	A-7	0	0	97-100	95-100	75-100	35-95	31-67	13-44
	45-62	Loamy sand, sandy loam, sandy clay loam, loam	SM, SC-SM, SC	A-2-4, A-4, A-6	0	0	97-100	95-100	50-95	15-75	16-44	2-25
3B:												
Craven----------	0-6	Fine sandy loam, loam, silt loam, very fine sandy loam	CL, ML, SC, SM	A-4	0	0	97-100	95-100	65-100	40-90	19-41	3-19
	6-31	Clay, clay loam, silty clay, silty clay loam	CH, CL	A-7	0	0	97-100	95-100	85-100	65-95	43-67	25-44
	31-45	Sandy clay loam, clay loam, clay, sandy clay, silty clay, silty clay loam	CH, CL, ML	A-7	0	0	97-100	95-100	75-100	35-95	31-67	13-44
	45-62	Loamy sand, sandy loam, sandy clay loam, loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	97-100	95-100	50-95	15-75	16-44	2-25

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
3C:												
Craven----------	0-6	Fine sandy loam, loam, silt loam, very fine sandy loam	SM, SC, ML, CL	A-4	0	0	97-100	95-100	65-100	40-90	19-41	3-19
	6-31	Clay, clay loam, silty clay, silty clay loam	CL, CH	A-7	0	0	97-100	95-100	85-100	65-95	43-67	25-44
	31-45	Sandy clay loam, clay loam, clay, sandy clay, silty clay, silty clay loam	CH, CL, ML	A-7	0	0	97-100	95-100	75-100	35-95	31-67	13-44
	45-62	Loamy sand, sandy loam, sandy clay loam, loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	97-100	95-100	50-95	15-75	16-44	2-25
4A:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	SC, CL, SM, ML	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
4B:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	SM, ML, SC-SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	SC, CL	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	CL, ML, SC, SM	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
4C:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	SM, SC, ML, CL	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5D:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	SC-SM, SM, ML	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	SC, CL	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	CL, SM, SC, ML	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36
Slagle----------	0-8	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, silt loam	SC-SM, SC	A-4, A-2-4	0	0	95-100	92-100	45-100	15-90	17-33	2-12
	8-56	Sandy clay loam, fine sandy loam, sandy loam	SC-SM, SC, CL	A-6	0	0	95-100	92-100	55-90	25-55	27-43	12-24
	56-62	Sandy clay loam, clay loam, sandy loam, fine sandy loam, sandy clay	SC, CL	A-6, A-7-6, A-2-6	0	0	95-100	92-100	55-100	25-80	27-50	12-29

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5D:												
Rumford---------	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SM, SC-SM	A-1-b, A-2-4	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SP-SM, SM	A-1-b, A-2-4, A-3, A-4	0	0	100	100	20-70	2-40	9-23	NP-6
5E:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	SC-SM, ML, SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	SM, SC, ML, CL	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5E:												
Slagle	0-8	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, silt loam	SC, SC-SM	A-2-4, A-4	0	0	95-100	92-100	45-100	15-90	17-33	2-12
	8-56	Sandy clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL	A-6	0	0	95-100	92-100	55-90	25-55	27-43	12-24
	56-62	Sandy clay loam, clay loam, sandy loam, fine sandy loam, sandy clay	CL, SC	A-6, A-7-6, A-2-6	0	0	95-100	92-100	55-100	25-80	27-50	12-29
Rumford	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-1-b, A-2-4	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SP-SM, SM	A-1-b, A-2-4, A-3, A-4	0	0	100	100	20-70	2-40	9-23	NP-6

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
6A:												
Faceville-------	0-9	Fine sandy loam, sandy loam, loamy fine sand, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	45-85	15-55	9-20	NP-2
	9-30	Sandy clay, clay loam, clay	ML, SM	A-4	0	0	90-100	85-100	70-100	40-95	20-42	5-9
	30-67	Clay loam, sandy clay, clay	ML	A-6, A-7, A-4	0	0	90-100	85-100	70-100	40-95	31-45	5-11
6B:												
Faceville-------	0-9	Fine sandy loam, sandy loam, loamy fine sand, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	45-85	15-55	9-20	NP-2
	9-30	Sandy clay, clay loam, clay	ML, SM	A-4	0	0	90-100	85-100	70-100	40-95	20-42	5-9
	30-67	Clay loam, sandy clay, clay	ML	A-6, A-7, A-4	0	0	90-100	85-100	70-100	40-95	31-45	5-11
7A:												
Kinston---------	0-4	Fine sandy loam, loam, silt loam, sandy loam, loamy sand	SM, ML, SC-SM	A-2-4, A-4	0	0	98-100	95-100	50-100	15-90	20-40	2-12
	4-47	Clay loam, sandy clay loam, loam, sandy loam, fine sandy loam	CL	A-6	0	0	98-100	95-100	55-100	30-80	27-49	12-24
	47-62	Loam, clay loam, sandy clay loam, sandy loam, fine sandy loam, loamy fine sand, loamy sand, sand	CL	A-4, A-6	0	0	95-100	85-100	40-100	4-80	0-49	NP-24

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7A:												
Bibb------------	0-6	Fine sandy loam, sandy loam, loam, silt loam, loamy sand	ML, SC-SM, SM, CL-ML	A-2-4, A-4	0	0-2	90-100	85-100	40-100	15-90	0-35	NP-12
	6-30	Sandy loam, fine sandy loam, loam, silt loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0-2	65-100	55-100	35-100	15-90	18-35	2-12
	30-62	Gravelly sand, loamy sand, sand, sandy loam, loam, silt loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0-2	65-100	55-100	30-100	3-90	0-31	NP-12
8A:												
Levy------------	0-4	Silt loam, silty clay loam, silty clay, clay, mucky silt loam	CH, ML, MH	A-7-6	0	0	100	100	90-100	70-95	43-79	14-35
	4-62	Silty clay, clay, clay loam, mucky silty clay	MH, CL, CH	A-7-6	0	0	100	100	90-100	70-95	49-84	25-43
9A:												
Mattaponi-------	0-8	Fine sandy loam, sandy loam, loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	80-100	50-95	25-75	17-33	2-12
	8-52	Clay, sandy clay, clay loam	CH, CL	A-7-6	0	0	90-100	80-100	70-100	35-95	43-67	25-44
	52-62	Clay, sandy clay, clay loam, sandy clay loam	CH, CL	A-6, A-7-6	0	0	90-100	80-100	65-100	30-95	39-67	21-44

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
9B:												
Mattaponi-------	0-8	Fine sandy loam, sandy loam, loam	SC-SM, SM	A-2-4, A-4	0	0	90-100	80-100	50-95	25-75	17-33	2-12
	8-52	Clay, sandy clay, clay loam	CL, CH	A-7-6	0	0	90-100	80-100	70-100	35-95	43-67	25-44
	52-62	Clay, sandy clay, clay loam, sandy clay loam	CH, CL	A-6, A-7-6	0	0	90-100	80-100	65-100	30-95	39-67	21-44
9C:												
Mattaponi-------	0-8	Fine sandy loam, sandy loam, loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	80-100	50-95	25-75	17-33	2-12
	8-52	Clay, sandy clay, clay loam	CL, CH	A-7-6	0	0	90-100	80-100	70-100	35-95	43-67	25-44
	52-62	Clay, sandy clay, clay loam, sandy clay loam	CL, CH	A-6, A-7-6	0	0	90-100	80-100	65-100	30-95	39-67	21-44
10A:												
Munden----------	0-8	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-85	15-55	0-28	NP-10
	8-33	Sandy loam, loam, fine sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	60-95	30-75	19-30	4-12
	33-42	Loamy sand, sand, fine sandy loam, loam	SP-SM, SC-SM, SM	A-2-4, A-3	0	0	100	100	50-95	5-75	0-31	NP-13
	42-70	Sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam	SW-SM, SM, SC-SM	A-2-4, A-3	0	0	100	90-100	45-85	4-55	0-27	NP-10

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
10B:												
Munden	0-8	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-85	15-55	0-28	NP-10
	8-33	Sandy loam, loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	60-95	30-75	19-30	4-12
	33-42	Loamy sand, sand, fine sandy loam, loam	SC-SM, SM, SP-SM	A-2-4, A-3	0	0	100	100	50-95	5-75	0-31	NP-13
	42-70	Sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM, SW-SM	A-2-4, A-3	0	0	100	90-100	45-85	4-55	0-27	NP-10
11A.												
Pits, gravel												
12A:												
Rappahannock	0-12	Muck, mucky peat	PT	A-8	0	0	---	---	---	---	---	---
	12-39	Mucky peat, muck	PT	A-8	0	0	---	---	---	---	---	---
	39-62	Sandy loam, loamy sand	SM	A-2-4, A-4, A-6	0	0	100	100	50-75	15-40	20-40	2-12

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
13A:												
Roanoke---------	0-5	Loam, silt loam, fine sandy loam	SC-SM, CL-ML, CL, SC	A-4, A-6	0	0	100	100	70-100	40-90	21-41	6-19
	5-36	Clay, clay loam, silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	70-95	43-68	25-44
	36-42	Sandy clay loam, clay loam, silty clay loam	CL, SC	A-7-6, A-6	0	0	100	100	80-100	35-95	31-50	13-29
	42-62	Stratified loamy sand to sandy loam to clay loam, sandy loam, stratified sand to clay	CL-ML, SC-SM, CH, SC	A-1-b, A-2-4, A-4, A-6, A-7-6	0	0	100	100	50-100	5-95	0-58	NP-36
14B:												
Rumford---------	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-1-b, A-2-4	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SM, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	100	100	20-70	2-40	9-23	NP-6

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
14C:												
Rumford	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-1-b, A-2-4	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SM, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	100	100	20-70	2-40	9-23	NP-6
15A:												
Slagle	0-8	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, silt loam	SC-SM, SC	A-4, A-2-4	0	0	95-100	92-100	45-100	15-90	17-33	2-12
	8-56	Sandy clay loam, fine sandy loam, sandy loam	CL, SC, SC-SM	A-6	0	0	95-100	92-100	55-90	25-55	27-43	12-24
	56-62	Sandy clay loam, clay loam, sandy loam, fine sandy loam, sandy clay	CL, SC	A-6, A-7-6, A-2-6	0	0	95-100	92-100	55-100	25-80	27-50	12-29

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
15B:												
Slagle----------	0-8	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, silt loam	SC-SM, SC	A-4, A-2-4	0	0	95-100	92-100	45-100	15-90	17-33	2-12
	8-56	Sandy clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL	A-6	0	0	95-100	92-100	55-90	25-55	27-43	12-24
	56-62	Sandy clay loam, clay loam, sandy loam, fine sandy loam, sandy clay	SC, CL	A-6, A-7-6, A-2-6	0	0	95-100	92-100	55-100	25-80	27-50	12-29
15C:												
Slagle----------	0-8	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, silt loam	SC-SM, SC	A-4, A-2-4	0	0	95-100	92-100	45-100	15-90	17-33	2-12
	8-56	Sandy clay loam, fine sandy loam, sandy loam	SC-SM, SC, CL	A-6	0	0	95-100	92-100	55-90	25-55	27-43	12-24
	56-62	Sandy clay loam, clay loam, sandy loam, fine sandy loam, sandy clay	CL, SC	A-6, A-7-6, A-2-6	0	0	95-100	92-100	55-100	25-80	27-50	12-29

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
16A:												
State-----------	0-17	Fine sandy loam, sandy loam, loam, silt loam, loamy sand, loamy fine sand	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	97-100	95-100	50-100	15-90	17-35	2-13
	17-36	Sandy clay loam, clay loam, loam, silt loam, sandy loam	CL, SC	A-6	0	0	97-100	95-100	55-100	30-90	27-43	12-24
	36-62	Loamy fine sand, loamy sand, sand, sandy loam	SC-SM, SM, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	90-100	80-100	40-85	4-45	0-27	NP-10
16B:												
State-----------	0-17	Fine sandy loam, sandy loam, loam, silt loam, loamy sand, loamy fine sand	SM, SC-SM, CL-ML, ML	A-2-4, A-4	0	0	97-100	95-100	50-100	15-90	17-35	2-13
	17-36	Sandy clay loam, clay loam, loam, silt loam, sandy loam	SC, CL	A-6	0	0	97-100	95-100	55-100	30-90	27-43	12-24
	36-62	Loamy fine sand, loamy sand, sand, sandy loam	SM, SC-SM, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	90-100	80-100	40-85	4-45	0-27	NP-10

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
17A:												
Suffolk---------	0-8	Sandy loam, fine sandy loam, loamy sand, loamy fine sand	SM, SC-SM, ML, CL-ML	A-2-4, A-4	0	0	97-100	92-100	45-85	15-55	18-33	3-12
	8-43	Sandy clay loam, sandy loam, fine sandy loam, clay loam, loam	SC, CL	A-6	0	0	97-100	92-100	55-100	25-80	27-43	12-24
	43-65	Loamy fine sand, sand, loamy sand, fine sand	SM, SP, SC-SM	A-1-b, A-2-4, A-4	0	0	90-100	85-100	40-85	4-45	15-22	1-6
17B:												
Suffolk---------	0-8	Sandy loam, fine sandy loam, loamy sand, loamy fine sand	SC-SM, CL-ML, ML, SM	A-2-4, A-4	0	0	97-100	92-100	45-85	15-55	18-33	3-12
	8-43	Sandy clay loam, sandy loam, fine sandy loam, clay loam, loam	SC, CL	A-6	0	0	97-100	92-100	55-100	25-80	27-43	12-24
	43-65	Loamy fine sand, sand, loamy sand, fine sand	SC-SM, SP, SM	A-1-b, A-2-4, A-4	0	0	90-100	85-100	40-85	4-45	15-22	1-6

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
17C:												
Suffolk---------	0-8	Sandy loam, fine sandy loam, loamy sand, loamy fine sand	SM, SC-SM, ML, CL-ML	A-2-4, A-4	0	0	97-100	92-100	45-85	15-55	18-33	3-12
	8-43	Sandy clay loam, sandy loam, fine sandy loam, clay loam, loam	SC, CL	A-6	0	0	97-100	92-100	55-100	25-80	27-43	12-24
	43-65	Loamy fine sand, sand, loamy sand, fine sand	SC-SM, SP, SM	A-1-b, A-2-4, A-4	0	0	90-100	85-100	40-85	4-45	15-22	1-6
18B:												
Tarboro---------	0-7	Sand, loamy sand, loamy fine sand	SM, SW-SM, SP-SC	A-2-4, A-3, A-1-b	0	0	100	100	50-85	5-45	0-26	NP-7
	7-62	Sand, loamy sand, loamy fine sand	SM, SP-SM, SW-SM	A-1-b, A-2-4, A-3	0	0	100	100	50-85	5-45	0-21	NP-4
19A:												
Tetotum---------	0-12	Fine sandy loam, loam, silt loam, sandy loam	SC-SM, CL-ML, SM	A-2-4, A-4	0	0	100	100	60-100	30-90	17-31	2-10
	12-32	Loam, clay loam, sandy clay loam, silty clay loam, silt loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	35-95	27-43	12-24
	32-49	Sandy loam, fine sandy loam, loam, sandy clay loam	SC, CL	A-6, A-2-6	0	0	100	100	60-95	30-75	24-43	9-24
	49-65	Sand, stratified sand to loamy sand to sandy loam to fine sandy loam	SC, SP-SM, ML, CL	A-2-4, A-4, A-1-b	0	0	100	100	50-85	5-55	0-31	NP-13

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
19B:												
Tetotum---------	0-12	Fine sandy loam, loam, silt loam, sandy loam	CL-ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	60-100	30-90	17-31	2-10
	12-32	Loam, clay loam, sandy clay loam, silty clay loam, silt loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	35-95	27-43	12-24
	32-49	Sandy loam, fine sandy loam, loam, sandy clay loam	CL, SC	A-6, A-2-6	0	0	100	100	60-95	30-75	24-43	9-24
	49-65	Sand, stratified sand to loamy sand to sandy loam to fine sandy loam	SP-SM, CL, SC, ML	A-2-4, A-4, A-1-b	0	0	100	100	50-85	5-55	0-31	NP-13
19C:												
Tetotum---------	0-12	Fine sandy loam, loam, silt loam, sandy loam	CL-ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	60-100	30-90	17-31	2-10
	12-32	Loam, clay loam, sandy clay loam, silty clay loam, silt loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	35-95	27-43	12-24
	32-49	Sandy loam, fine sandy loam, loam, sandy clay loam	CL, SC	A-6, A-2-6	0	0	100	100	60-95	30-75	24-43	9-24
	49-65	Sand, stratified sand to loamy sand to sandy loam to fine sandy loam	CL, ML, SC, SP-SM	A-2-4, A-4, A-1-b	0	0	100	100	50-85	5-55	0-31	NP-13

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
20A:												
Tomotley--------	0-5	Fine sandy loam, sandy loam, loam, silt loam, loamy sand	SC-SM, SM, CL	A-2-4, A-4	0	0	95-100	92-100	45-100	15-90	18-43	2-13
	5-45	Sandy clay loam, sandy loam, fine sandy loam, loam, silty clay loam	CL, SC, SC-SM	A-6	0	0	95-100	92-100	55-100	25-95	28-45	12-24
	45-62	Sandy loam, fine sandy loam, sandy clay loam, clay loam, stratified sand to clay	SC-SM, SC, CL, CL-ML	A-4, A-6, A-7-6, A-2-4	0	0	95-100	92-100	45-100	4-95	0-53	NP-32
21A:												
Wahee-----------	0-11	Fine sandy loam, loam, silt loam, sandy loam	SC-SM, SM, CL	A-2-4, A-4	0	0	100	100	60-100	30-90	17-41	2-13
	11-38	Clay, clay loam, silty clay, sandy clay	CH, CL	A-7-6	0	0	100	100	85-100	45-95	43-67	25-44
	38-62	Loamy sand, stratified sand to clay	SC-SM, CL, CL-ML	A-2-4, A-4, A-6, A-1, A-7-6	0	0	100	100	50-100	5-95	0-59	NP-36
W.												
Water												

Table 17.—Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
1A:														
Augusta--------	0-9	20-80	5-75	5-20	1.40-1.70	14.00-42.00	0.10-0.20	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	9-60	25-75	5-45	20-35	1.35-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	60-70	25-80	5-45	10-35	1.35-1.70	4.00-42.00	0.10-0.15	0.0-2.9	0.0-0.2	.15	.15			
2A:														
Bojac----------	0-10	30-88	2-45	3-15	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.10	.10	4	2	134
	10-49	30-82	5-45	11-18	1.35-1.55	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.32	.32			
	49-62	70-90	0-27	1-6	1.30-1.80	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.2	.10	.10			
2B:														
Bojac----------	0-10	30-88	2-45	3-15	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.10	.10	4	2	134
	10-49	30-82	5-45	11-18	1.35-1.55	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.32	.32			
	49-62	70-90	0-27	1-6	1.30-1.80	42.00-141.00	0.02-0.05	0.0-2.9	0.0-0.2	.10	.10			
3A:														
Craven---------	0-6	5-80	5-75	7-27	1.30-1.45	1.40-14.00	0.12-0.20	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	6-31	5-40	10-65	35-60	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.20	.20			
	31-45	5-75	5-65	20-60	1.30-1.45	0.42-14.00	0.12-0.15	3.0-5.9	0.0-0.2	.15	.15			
	45-62	30-90	0-45	5-35	1.35-1.60	1.40-142.00	0.03-0.14	0.0-2.9	0.0-0.2	.10	.10			
3B:														
Craven---------	0-6	5-80	5-75	7-27	1.30-1.45	1.40-14.00	0.12-0.20	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	6-31	5-40	10-65	35-60	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.20	.20			
	31-45	5-75	5-65	20-60	1.30-1.45	0.42-14.00	0.12-0.15	3.0-5.9	0.0-0.2	.15	.15			
	45-62	30-90	0-45	5-35	1.35-1.60	1.40-142.00	0.03-0.14	0.0-2.9	0.0-0.2	.10	.10			
3C:														
Craven---------	0-6	5-80	5-75	7-27	1.30-1.45	1.40-14.00	0.12-0.20	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	6-31	5-40	10-65	35-60	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.20	.20			
	31-45	5-75	5-65	20-60	1.30-1.45	0.42-14.00	0.12-0.15	3.0-5.9	0.0-0.2	.15	.15			
	45-62	30-90	0-45	5-35	1.35-1.60	1.40-142.00	0.03-0.14	0.0-2.9	0.0-0.2	.10	.10			
4A:														
Emporia--------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
4B:														
Emporia--------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
4C:														
Emporia--------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
5D:														
Emporia--------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
Slagle---------	0-8	20-90	0-75	5-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-56	45-80	5-27	18-34	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.15	.15			
	56-62	25-80	5-45	18-40	1.35-1.60	0.10-9.00	0.07-0.18	0.0-5.9	0.0-0.2	.15	.15			
Rumford--------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
5E:														
Emporia--------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
Slagle---------	0-8	20-90	0-75	5-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-56	45-80	5-27	18-34	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.15	.15			
	56-62	25-80	5-45	18-40	1.35-1.60	0.10-9.00	0.07-0.18	0.0-5.9	0.0-0.2	.15	.15			
Rumford--------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	55-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
6A:														
Faceville------	0-9	50-88	1-35	5-20	1.40-1.65	42.00-141.00	0.06-0.09	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	9-30	35-60	5-30	20-50	1.35-1.60	4.00-14.00	0.12-0.15	0.0-2.9	0.0-0.5	.10	.10			
	30-67	35-60	5-30	30-55	1.25-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.2	.24	.24			
6B:														
Faceville------	0-9	50-88	1-35	5-20	1.40-1.65	42.00-141.00	0.06-0.09	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	9-30	35-60	5-30	20-50	1.35-1.60	4.00-14.00	0.12-0.15	0.0-2.9	0.0-0.5	.10	.10			
	30-67	35-60	5-30	30-55	1.25-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.2	.24	.24			
7A:														
Kinston--------	0-4	20-88	1-75	5-18	1.40-1.60	14.00-42.00	0.13-0.19	0.0-2.9	2.0-5.0	.24	.24	5	3	86
	4-47	20-80	5-45	18-35	1.30-1.50	4.00-14.00	0.14-0.18	0.0-2.9	0.0-3.0	.20	.20			
	47-62	20-99	0-45	2-35	1.30-1.50	4.00-142.00	0.05-0.18	0.0-2.9	0.0-3.0	.24	.28			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
7A:														
Bibb-----------	0-6	20-88	1-75	2-18	1.50-1.70	4.00-14.00	0.12-0.22	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	6-30	20-80	5-75	5-18	1.50-1.70	4.00-14.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.24			
	30-62	20-99	0-75	1-18	1.45-1.75	4.00-142.00	0.03-0.20	0.0-2.9	0.5-1.0	.05	.10			
8A:														
Levy-----------	0-4	2-25	25-75	20-50	0.50-1.00	0.42-1.40	0.16-0.22	6.0-8.9	5.0-10	.37	.37	5	8	0
	4-62	1-25	25-60	35-60	0.50-1.10	0.42-1.40	0.16-0.22	6.0-8.9	2.0-8.0	.15	.15			
9A:														
Mattaponi------	0-8	40-80	5-35	5-18	1.30-1.55	4.00-42.00	0.08-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	8-52	20-60	5-30	35-60	1.40-1.65	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.20	.20			
	52-62	15-75	5-35	30-60	1.40-1.65	1.40-14.00	0.11-0.18	3.0-5.9	0.0-0.2	.20	.20			
9B:														
Mattaponi------	0-8	40-80	5-35	5-18	1.30-1.55	4.00-42.00	0.08-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	8-52	20-60	5-30	35-60	1.40-1.65	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.20	.20			
	52-62	15-75	5-35	30-60	1.40-1.65	1.40-14.00	0.11-0.18	3.0-5.9	0.0-0.2	.20	.20			
9C:														
Mattaponi------	0-8	40-80	5-35	5-18	1.30-1.55	4.00-42.00	0.08-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	8-52	20-60	5-30	35-60	1.40-1.65	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.20	.20			
	52-62	15-75	5-35	30-60	1.40-1.65	1.40-14.00	0.11-0.18	3.0-5.9	0.0-0.2	.20	.20			
10A:														
Munden---------	0-8	65-88	1-35	3-15	1.20-1.35	14.00-42.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	4	2	134
	8-33	40-80	5-45	8-18	1.20-1.35	4.00-42.00	0.08-0.18	0.0-2.9	0.2-0.8	.24	.24			
	33-42	40-95	1-45	2-20	1.35-1.55	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.2	.10	.10			
	42-70	60-98	0-35	2-15	1.35-1.60	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.2	.10	.10			
10B:														
Munden---------	0-8	65-88	1-35	3-15	1.20-1.35	14.00-42.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	4	2	134
	8-33	40-80	5-45	8-18	1.20-1.35	4.00-42.00	0.08-0.18	0.0-2.9	0.2-0.8	.24	.24			
	33-42	40-95	1-45	2-20	1.35-1.55	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.2	.10	.10			
	42-70	60-98	0-35	2-15	1.35-1.60	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.2	.10	.10			
11A.														
Pits, gravel														
12A:														
Rappahannock---	0-12	5-25	75-95	0-10	0.10-0.60	4.00-14.00	0.22-0.26	0.0-2.9	20-65	---	---	2	8	0
	12-39	5-25	75-95	0-10	0.10-1.00	4.00-14.00	0.22-0.26	0.0-2.9	20-50	---	---			
	39-62	55-88	1-40	5-18	1.20-1.50	4.00-142.00	0.08-0.20	0.0-2.9	2.0-5.0	.17	.17			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
13A:														
Roanoke--------	0-5	5-80	5-75	10-27	1.20-1.50	4.00-14.00	0.14-0.20	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	5-36	5-40	30-60	35-60	1.20-1.50	0.01-4.00	0.16-0.19	3.0-5.9	0.0-1.0	.20	.20			
	36-42	5-70	5-60	20-40	1.35-1.65	4.00-14.00	0.10-0.19	3.0-5.9	0.0-0.5	.15	.15			
	42-62	25-99	0-45	2-50	1.20-1.50	0.01-141.00	0.04-0.14	0.0-5.9	0.0-0.2	.24	.24			
14B:														
Rumford--------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
14C:														
Rumford--------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
15A:														
Slagle---------	0-8	20-90	0-75	5-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-56	45-80	5-27	18-34	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.15	.15			
	56-62	25-80	5-45	18-40	1.35-1.60	0.10-9.00	0.07-0.18	0.0-5.9	0.0-0.2	.15	.15			
15B:														
Slagle---------	0-8	20-90	0-75	5-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-56	45-80	5-27	18-34	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.15	.15			
	56-62	25-80	5-45	18-40	1.35-1.60	0.10-9.00	0.07-0.18	0.0-5.9	0.0-0.2	.15	.15			
15C:														
Slagle---------	0-8	20-90	0-75	5-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-56	45-80	5-27	18-34	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.15	.15			
	56-62	25-80	5-45	18-40	1.35-1.60	0.10-9.00	0.07-0.18	0.0-5.9	0.0-0.2	.15	.15			
16A:														
State----------	0-17	20-88	1-75	5-20	1.25-1.40	4.00-42.00	0.08-0.20	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	17-36	20-80	5-65	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.15	.15			
	36-62	55-99	0-25	2-15	1.35-1.50	14.00-141.00	0.02-0.15	0.0-2.9	0.0-0.2	.28	.28			
16B:														
State----------	0-17	20-88	1-75	5-20	1.25-1.40	4.00-42.00	0.08-0.20	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	17-36	20-80	5-65	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.15	.15			
	36-62	55-99	0-25	2-15	1.35-1.50	14.00-141.00	0.02-0.15	0.0-2.9	0.0-0.2	.28	.28			
17A:														
Suffolk--------	0-8	60-88	1-30	6-18	1.35-1.45	14.00-42.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	8-43	35-80	5-30	18-34	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.15			
	43-65	75-100	0-20	4-10	1.40-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.28	.28			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
17B:														
Suffolk--------	0-8	60-88	1-30	6-18	1.35-1.45	14.00-42.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	8-43	35-80	5-30	18-34	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.15			
	43-65	75-100	0-20	4-10	1.40-1.5	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.28	.28			
17C:														
Suffolk--------	0-8	60-88	1-30	6-18	1.35-1.45	14.00-42.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	8-43	35-80	5-30	18-34	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.15			
	43-65	75-100	0-20	4-10	1.40-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.28	.28			
18B:														
Tarboro--------	0-7	75-100	0-20	3-12	1.60-1.75	42.00-141.00	0.05-0.09	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	7-62	75-100	0-20	2-8	1.60-1.75	141.00-141.00	0.02-0.06	0.0-2.9	0.0-0.2	.10	.10			
19A:														
Tetotum--------	0-12	20-80	5-75	5-15	1.50-1.70	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	12-32	20-75	20-75	18-34	1.40-1.65	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.32	.32			
	32-49	30-80	5-45	15-34	1.40-1.65	4.00-14.00	0.12-0.19	0.0-2.9	0.0-0.2	.24	.24			
	49-65	55-99	0-25	2-20	1.50-1.80	14.00-141.00	0.03-0.12	0.0-2.9	0.0-0.2	.10	.10			
19B:														
Tetotum--------	0-12	20-80	5-75	5-15	1.50-1.70	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	12-32	20-75	20-75	18-34	1.40-1.65	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.32	.32			
	32-49	30-80	5-45	15-34	1.40-1.65	4.00-14.00	0.12-0.19	0.0-2.9	0.0-0.2	.24	.24			
	49-65	55-99	0-25	2-20	1.50-1.80	14.00-141.00	0.03-0.12	0.0-2.9	0.0-0.2	.10	.10			
19C:														
Tetotum--------	0-12	20-80	5-75	5-15	1.50-1.70	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	12-32	20-75	20-75	18-34	1.40-1.65	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.32	.32			
	32-49	30-80	5-45	15-34	1.40-1.65	4.00-14.00	0.12-0.19	0.0-2.9	0.0-0.2	.24	.24			
	49-65	55-99	0-25	2-20	1.50-1.80	14.00-141.00	0.03-0.12	0.0-2.9	0.0-0.2	.10	.10			
20A:														
Tomotley-------	0-5	20-88	1-75	5-20	1.30-1.60	14.00-42.00	0.10-0.22	0.0-2.9	1.0-6.0	.24	.24	5	3	86
	5-45	20-80	5-70	18-34	1.30-1.50	4.00-14.00	0.12-0.20	0.0-2.9	0.5-1.0	.15	.15			
	45-62	25-99	0-45	2-45	1.30-1.60	1.40-141.00	0.02-0.18	0.0-2.9	0.0-0.5	.20	.24			
21A:														
Wahee----------	0-11	20-80	5-75	5-20	1.30-1.60	4.00-14.00	0.10-0.20	0.0-2.9	0.5-5.0	.24	.24	5	3	86
	11-38	5-50	10-55	35-60	1.40-1.60	0.42-1.40	0.12-0.18	3.0-5.9	0.0-0.5	.20	.20			
	38-62	15-99	0-35	2-50	1.40-1.60	0.42-141.00	0.02-0.16	0.0-5.9	0.0-0.5	.10	.10			
W.														
Water														

Table 18.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
1A:						
Augusta--------------	0-9	2.9-12	2.2-8.6	4.5-6.0	0	0
	9-60	7.0-13	5.2-10	4.5-6.0	0	0
	60-70	3.5-13	2.6-10	4.5-6.0	0	0
2A:						
Bojac----------------	0-10	2.2-5.0	1.6-3.8	3.6-6.5	0	0
	10-49	3.9-7.4	2.9-5.6	3.6-6.5	0	0
	49-62	0.3-3.2	0.3-2.4	4.5-6.0	0	0
2B:						
Bojac----------------	0-10	2.2-5.0	1.6-3.8	3.6-6.5	0	0
	10-49	3.9-7.4	2.9-5.6	3.6-6.5	0	0
	49-62	0.3-3.2	0.3-2.4	4.5-6.0	0	0
3A:						
Craven---------------	0-6	2.9-11	2.2-8.4	4.5-5.5	0	0
	6-31	8.8-16	6.6-12	4.5-5.5	0	0
	31-45	8.0-16	6.2-12	4.5-5.5	0	0
	45-62	1.2-2.0	0.9-1.7	4.5-5.5	0	0
3B:						
Craven---------------	0-6	2.9-11	2.2-8.4	4.5-5.5	0	0
	6-31	8.8-16	6.6-12	4.5-5.5	0	0
	31-45	8.0-16	6.2-12	4.5-5.5	0	0
	45-62	1.2-2.0	0.9-1.7	4.5-5.5	0	0
3C:						
Craven---------------	0-6	2.9-11	2.2-8.4	4.5-5.5	0	0
	6-31	8.8-16	6.6-12	4.5-5.5	0	0
	31-45	8.0-16	6.2-12	4.5-5.5	0	0
	45-62	1.2-2.0	0.9-1.7	4.5-5.5	0	0
4A:						
Emporia--------------	0-12	2.9-9.0	2.2-6.8	4.5-6.0	0	0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0	0	0
	42-62	1.2-11	0.9-8.3	4.5-6.0	0	0
4B:						
Emporia--------------	0-12	2.9-9.0	2.2-6.8	4.5-6.0	0	0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0	0	0
	42-62	1.2-11	0.9-8.3	4.5-6.0	0	0
4C:						
Emporia--------------	0-12	2.9-9.0	2.2-6.8	4.5-6.0	0	0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0	0	0
	42-62	1.2-11	0.9-8.3	4.5-6.0	0	0
5D:						
Emporia--------------	0-12	2.9-9.0	2.2-6.8	4.5-6.0	0	0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0	0	0
	42-62	1.2-11	0.9-8.3	4.5-6.0	0	0
Slagle---------------	0-8	3.1-9.0	2.3-6.8	3.5-5.5	0	0
	8-56	3.0-9.6	2.2-7.2	3.5-5.5	0	0
	56-62	4.5-11	3.4-8.3	3.5-5.5	0	0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
5D:						
Rumford	0-14	1.6-6.0	1.2-4.5	3.5-5.5	0	0
	14-38	2.0-6.1	1.5-4.6	3.5-6.0	0	0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0	0	0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5	0	0
5E:						
Emporia	0-12	2.9-9.0	2.2-6.8	4.5-6.0	0	0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0	0	0
	42-62	1.2-11	0.9-8.3	4.5-6.0	0	0
Slagle	0-8	3.1-9.0	2.3-6.8	3.5-5.5	0	0
	8-56	3.0-9.6	2.2-7.2	3.5-5.5	0	0
	56-62	4.5-11	3.4-8.3	3.5-5.5	0	0
Rumford	0-14	1.6-6.0	1.2-4.5	3.5-5.5	0	0
	14-38	2.0-6.1	1.5-4.6	3.5-6.0	0	0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0	0	0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5	0	0
6A:						
Faceville	0-9	1.6-6.5	1.2-4.9	4.5-5.5	0	0
	9-30	2.0-6.1	1.5-4.6	4.5-5.5	0	0
	30-67	3.5-6.6	2.6-5.0	4.5-5.5	0	0
6B:						
Faceville	0-9	1.6-6.5	1.2-4.9	4.5-5.5	0	0
	9-30	2.0-6.1	1.5-4.6	4.5-5.5	0	0
	30-67	3.5-6.6	2.6-5.0	4.5-5.5	0	0
7A:						
Kinston	0-4	5.8-16	4.3-12	4.5-5.5	0	0
	4-47	4.5-16	3.4-12	4.5-5.5	0	0
	47-62	2.0-16	1.7-12	4.5-5.5	0	0
Bibb	0-6	2.8-11	2.1-8.4	3.5-5.5	0	0
	6-30	2.8-11	2.1-8.4	3.5-5.5	0	0
	30-62	1.0-6.8	0.6-5.1	3.5-5.5	0	0
8A:						
Levy	0-4	18-40	14-30	3.5-5.5	0.0-2.0	10-20
	4-62	17-39	13-29	3.5-5.5	0.0-2.0	10-20
9A:						
Mattaponi	0-8	2.4-9.0	1.8-6.8	4.5-5.5	0	0
	8-52	8.8-16	6.6-12	4.5-5.5	0	0
	52-62	8.1-16	6.1-12	4.5-5.5	0	0
9B:						
Mattaponi	0-8	2.4-9.0	1.8-6.8	4.5-5.5	0	0
	8-52	8.8-16	6.6-12	4.5-5.5	0	0
	52-62	8.1-16	6.1-12	4.5-5.5	0	0
9C:						
Mattaponi	0-8	2.4-9.0	1.8-6.8	4.5-5.5	0	0
	8-52	8.8-16	6.6-12	4.5-5.5	0	0
	52-62	8.1-16	6.1-12	4.5-5.5	0	0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
10A:						
Munden---------------	0-8	2.2-7.5	1.6-5.6	4.5-6.0	0	0
	8-33	3.9-8.6	2.9-6.4	4.5-6.0	0	0
	33-42	0.7-6.4	0.5-4.8	4.5-6.0	0	0
	42-70	0.7-6.7	0.5-5.1	4.5-6.0	0	0
10B:						
Munden---------------	0-8	2.2-7.5	1.6-5.6	4.5-6.0	0	0
	8-33	3.9-8.6	2.9-6.4	4.5-6.0	0	0
	33-42	0.7-6.4	0.5-4.8	4.5-6.0	0	0
	42-70	0.7-6.7	0.5-5.1	4.5-6.0	0	0
11A.						
Pits, gravel						
12A:						
Rappahannock---------	0-12	45-146	34-110	5.1-8.4	2.0-16.0	0
	12-39	45-113	34-84	5.1-8.4	2.0-16.0	0
	39-62	6.2-27	4.7-20	5.1-8.4	2.0-16.0	0
13A:						
Roanoke--------------	0-5	3.6-11	2.7-8.4	3.5-5.5	0	0
	5-36	8.8-17	6.6-13	3.5-5.5	0	0
	36-42	5.0-11	3.8-8.3	3.5-5.5	0	0
	42-62	0.5-13	0.4-9.7	3.5-5.5	0	0
14B:						
Rumford--------------	0-14	1.6-6.0	1.2-4.5	3.5-5.5	0	0
	14-38	2.0-6.1	1.5-4.6	3.5-6.0	0	0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0	0	0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5	0	0
14C:						
Rumford--------------	0-14	1.6-6.0	1.2-4.5	3.5-5.5	0	0
	14-38	2.0-6.1	1.5-4.6	3.5-6.0	0	0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0	0	0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5	0	0
15A:						
Slagle---------------	0-8	3.1-9.0	2.3-6.8	3.5-5.5	0	0
	8-56	3.0-9.6	2.2-7.2	3.5-5.5	0	0
	56-62	4.5-11	3.4-8.3	3.5-5.5	0	0
15B:						
Slagle---------------	0-8	3.1-9.0	2.3-6.8	3.5-5.5	0	0
	8-56	3.0-9.6	2.2-7.2	3.5-5.5	0	0
	56-62	4.5-11	3.4-8.3	3.5-5.5	0	0
15C:						
Slagle---------------	0-8	3.1-9.0	2.3-6.8	3.5-5.5	0	0
	8-56	3.0-9.6	2.2-7.2	3.5-5.5	0	0
	56-62	4.5-11	3.4-8.3	3.5-5.5	0	0
16A:						
State----------------	0-17	2.9-12	2.2-8.6	3.5-5.5	0	0
	17-36	6.3-13	4.7-9.8	3.5-5.5	0	0
	36-62	0.7-6.4	0.5-4.8	3.5-6.5	0	0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
16B:						
State----------------	0-17	2.9-12	2.2-8.6	3.5-5.5	0	0
	17-36	6.3-13	4.7-9.8	3.5-5.5	0	0
	36-62	0.7-6.4	0.5-4.8	3.5-6.5	0	0
17A:						
Suffolk--------------	0-8	2.6-9.0	2.0-6.8	3.6-6.0	0	0
	8-43	2.5-9.4	1.9-7.0	3.6-6.0	0	0
	43-65	1.0-3.6	0.8-2.7	3.6-6.0	0	0
17B:						
Suffolk--------------	0-8	2.6-9.0	2.0-6.8	3.6-6.0	0	0
	8-43	2.5-9.4	1.9-7.0	3.6-6.0	0	0
	43-65	1.0-3.6	0.8-2.7	3.6-6.0	0	0
17C:						
Suffolk--------------	0-8	2.6-9.0	2.0-6.8	3.6-6.0	0	0
	8-43	2.5-9.4	1.9-7.0	3.6-6.0	0	0
	43-65	1.0-3.6	0.8-2.7	3.6-6.0	0	0
18B:						
Tarboro--------------	0-7	2.2-6.5	1.6-4.8	5.1-6.5	0	0
	7-62	0.7-3.9	0.5-2.9	5.1-6.5	0	0
19A:						
Tetotum--------------	0-12	2.4-8.2	1.8-6.2	3.5-5.5	0	0
	12-32	4.5-9.6	3.4-7.2	3.5-5.5	0	0
	32-49	3.8-9.0	2.8-6.7	3.5-5.5	0	0
	49-65	0.5-5.5	0.4-4.1	3.5-5.5	0	0
19B:						
Tetotum--------------	0-12	2.4-8.2	1.8-6.2	3.5-5.5	0	0
	12-32	4.5-9.6	3.4-7.2	3.5-5.5	0	0
	32-49	3.8-9.0	2.8-6.7	3.5-5.5	0	0
	49-65	0.5-5.5	0.4-4.1	3.5-5.5	0	0
19C:						
Tetotum--------------	0-12	2.4-8.2	1.8-6.2	3.5-5.5	0	0
	12-32	4.5-9.6	3.4-7.2	3.5-5.5	0	0
	32-49	3.8-9.0	2.8-6.7	3.5-5.5	0	0
	49-65	0.5-5.5	0.4-4.1	3.5-5.5	0	0
20A:						
Tomotley-------------	0-5	4.0-20	3.0-15	3.5-5.5	0	0
	5-45	7.4-14	5.6-11	3.5-5.5	0	0
	45-62	1.0-17	0.5-13	3.5-6.0	0	0
21A:						
Wahee----------------	0-11	2.9-18	2.2-14	4.5-6.0	0	0
	11-38	12-22	9.2-17	3.5-5.5	0	0
	38-62	1.2-20	0.7-17	3.5-5.5	0	0
W.						
Water						

Table 19.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
1A:										
Augusta---------------	C	Very high	Jan-May	1.0-2.0	>6.0	---	---	None	Brief	Rare
			June-Nov	---	---	---	---	None	Brief	Rare
			December	1.0-2.0	>6.0	---	---	None	Brief	Rare
2A:										
Bojac-----------------	B	Very low	Jan-April	4.0-6.6	>6.0	---	---	None	Brief	Rare
			May-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	4.0-6.6	>6.0	---	---	None	Brief	Rare
2B:										
Bojac-----------------	B	Very low	Jan-April	4.0-6.6	>6.0	---	---	None	Brief	Rare
			May-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	4.0-6.6	>6.0	---	---	None	Brief	Rare
3A:										
Craven----------------	C	Low	Jan-April	2.0-3.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
3B:										
Craven----------------	C	Low	Jan-April	2.0-3.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
3C:										
Craven----------------	C	Medium	Jan-April	2.0-3.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
4A:										
Emporia---------------	C	Low	Jan-April	3.0-4.5	4.5-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	4.5-6.6	---	---	None	---	None
4B:										
Emporia---------------	C	Low	Jan-April	3.0-4.5	4.5-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	4.5-6.6	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
4C:										
Emporia----------------	C	Medium	Jan-April	3.0-4.5	4.5-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	4.5-6.6	---	---	None	---	None
5D:										
Emporia----------------	C	Medium	Jan-April	3.0-4.5	4.5-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	4.5-6.6	---	---	None	---	None
Slagle-----------------	C	Medium	Jan-April	1.5-3.0	3.0-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	1.5-3.0	3.0-6.6	---	---	None	---	None
Rumford----------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
5E:										
Emporia----------------	C	High	Jan-April	3.0-4.5	4.5-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	4.5-6.6	---	---	None	---	None
Slagle-----------------	C	High	Jan-April	1.5-3.0	3.0-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	1.5-3.0	3.0-6.6	---	---	None	---	None
Rumford----------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
6A:										
Faceville--------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
6B:										
Faceville--------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
7A:										
Kinston----------------	B/D	Very high	Jan-June	0.0-1.0	>6.0	---	---	None	Long	Occasional
			July-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Long	Occasional
Bibb-------------------	D	Very high	Jan-May	0.5-1.0	>6.0	---	---	None	Long	Occasional
			June-Nov	---	---	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	Long	Occasional
8A:										
Levy-------------------	D	Negligible	Jan-Dec	0.0	>6.0	1.0-2.0	Long	Frequent	Very long	Very frequent

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
9A:										
Mattaponi	C	Low	Jan-March	3.0-4.5	4.5-6.6	---	---	None	---	None
			April-Nov	---	---	---	---	None	---	None
			December	3.0-4.5	4.5-6.6	---	---	None	---	None
9B:										
Mattaponi	C	Low	Jan-March	3.0-4.5	4.5-6.6	---	---	None	---	None
			April-Nov	---	---	---	---	None	---	None
			December	3.0-4.5	4.5-6.6	---	---	None	---	None
9C:										
Mattaponi	C	Medium	Jan-March	3.0-4.5	4.5-6.6	---	---	None	---	None
			April-Nov	---	---	---	---	None	---	None
			December	3.0-4.5	4.5-6.6	---	---	None	---	None
10A:										
Munden	B	Very low	Jan-April	1.5-2.5	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.5-2.5	>6.0	---	---	None	---	None
10B:										
Munden	B	Very low	Jan-April	1.5-2.5	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.5-2.5	>6.0	---	---	None	---	None
11A.										
Pits, gravel										
12A:										
Rappahannock	D	Negligible	Jan-Dec	0.0	>6.0	0.0-2.0	Very brief	Frequent	Very brief	Very frequent
13A:										
Roanoke	D	Very high	Jan-May	0.0-1.0	>6.0	---	---	None	Brief	Rare
			June-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Rare
14B:										
Rumford	B	Very low	Jan-Dec	---	---	---	---	None	---	None
14C:										
Rumford	B	Low	Jan-Dec	---	---	---	---	None	---	None
15A:										
Slagle	C	Low	Jan-April	1.5-3.0	3.0-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	1.5-3.0	3.0-6.6	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
15B:										
Slagle	C	Low	Jan-April	1.5-3.0	3.0-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	1.5-3.0	3.0-6.6	---	---	None	---	None
15C:										
Slagle	C	Medium	Jan-April	1.5-3.0	3.0-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	1.5-3.0	3.0-6.6	---	---	None	---	None
16A:										
State	B	Low	Jan-June	4.0-6.6	>6.0	---	---	None	---	None
			July-Nov	---	---	---	---	None	---	None
			December	4.0-6.6	>6.0	---	---	None	---	None
16B:										
State	B	Low	Jan-June	4.0-6.6	>6.0	---	---	None	---	None
			July-Nov	---	---	---	---	None	---	None
			December	4.0-6.6	>6.0	---	---	None	---	None
17A:										
Suffolk	B	Low	Jan-Dec	---	---	---	---	None	---	None
17B:										
Suffolk	B	Low	Jan-Dec	---	---	---	---	None	---	None
17C:										
Suffolk	B	Medium	Jan-Dec	---	---	---	---	None	---	None
18B:										
Tarboro	A	Very low	Jan-Dec	---	---	---	---	None	Brief	Rare
19A:										
Tetotum	C	Low	Jan-April	1.5-2.5	>6.0	---	---	None	Brief	Rare
			May-Nov	---	---	---	---	None	Brief	Rare
			December	1.5-2.5	>6.0	---	---	None	Brief	Rare
19B:										
Tetotum	C	Low	Jan-April	1.5-2.5	>6.0	---	---	None	Brief	Rare
			May-Nov	---	---	---	---	None	Brief	Rare
			December	1.5-2.5	>6.0	---	---	None	Brief	Rare
19C:										
Tetotum	C	Medium	Jan-April	1.5-2.5	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.5-2.5	>6.0	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
20A:										
Tomotley----------------	B/D	Very high	Jan-April	0.0-1.0	>6.0	---	---	None	Brief	Rare
			May-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Rare
21A:										
Wahee-------------------	D	Very high	Jan-March	0.5-1.5	>6.0	---	---	None	Brief	Rare
			April-Nov	---	---	---	---	None	Brief	Rare
			December	0.5-1.5	>6.0	---	---	None	Brief	Rare
W.										
Water										

Table 20.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
1A:			
Augusta	None	High	Moderate
2A:			
Bojac	None	Low	High
2B:			
Bojac	None	Low	High
3A:			
Craven	None	High	High
3B:			
Craven	None	High	High
3C:			
Craven	None	High	High
4A:			
Emporia	None	Moderate	High
4B:			
Emporia	None	Moderate	High
4C:			
Emporia	None	Moderate	High
5D:			
Emporia	None	Moderate	High
Slagle	None	Moderate	High
Rumford	None	Low	High
5E:			
Emporia	None	Moderate	High
Slagle	None	Moderate	High
Rumford	None	Low	High
6A:			
Faceville	None	Low	Moderate
6B:			
Faceville	None	Low	Moderate
7A:			
Kinston	None	High	High
Bibb	None	High	Moderate
8A:			
Levy	None	High	High
9A:			
Mattaponi	None	High	High

Table 20.—Soil Features—Continued

Map symbol and soil name	Potential for frost action	Risk of corrosion	
		Uncoated steel	Concrete
9B:			
Mattaponi	None	High	High
9C:			
Mattaponi	None	High	High
10A:			
Munden	None	Low	High
10B:			
Munden	None	Low	High
11A.			
Pits, gravel			
12A:			
Rappahannock	None	High	High
13A:			
Roanoke	None	High	High
14B:			
Rumford	None	Low	High
14C:			
Rumford	None	Low	High
15A:			
Slagle	None	Moderate	High
15B:			
Slagle	None	Moderate	High
15C:			
Slagle	None	Moderate	High
16A:			
State	None	Moderate	High
16B:			
State	None	Moderate	High
17A:			
Suffolk	None	Moderate	High
17B:			
Suffolk	None	Moderate	High
17C:			
Suffolk	None	Moderate	High
18B:			
Tarboro	None	Low	Moderate
19A:			
Tetotum	None	High	High
19B:			
Tetotum	None	High	High

Table 20.—Soil Features—Continued

Map symbol and soil name	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
19C:			
Tetotum	None	High	High
20A:			
Tomotley	None	High	High
21A:			
Wahee	None	High	High
W.			
Water			

Table 21.—Classification of the Soils

Soil name	Family or higher taxonomic class
Augusta	Fine-loamy, mixed, semiactive, thermic Aeric Endoaquults
Bibb	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Bojac	Coarse-loamy, mixed, semiactive, thermic Typic Hapludults
Craven	Fine, mixed, subactive, thermic Aquic Hapludults
Emporia	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Faceville	Fine, kaolinitic, thermic Typic Kandiudults
Kinston	Fine-loamy, siliceous, semiactive, acid, thermic Fluvaquentic Endoaquepts
Levy	Fine, mixed, superactive, acid, thermic Typic Hydraquents
Mattaponi	Fine, mixed, subactive, thermic Oxyaquic Hapludults
Munden	Coarse-loamy, mixed, semiactive, thermic Aquic Hapludults
Rappahannock	Loamy, mixed, euic, thermic Terric Sulfisaprists
Roanoke	Fine, mixed, semiactive, thermic Typic Endoaquults
Rumford	Coarse-loamy, siliceous, subactive, thermic Typic Hapludults
Slagle	Fine-loamy, siliceous, subactive, thermic Aquic Hapludults
State	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Suffolk	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Tarboro	Mixed, thermic Typic Udipsamments
Tetotum	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Tomotley	Fine-loamy, mixed, semiactive, thermic Typic Endoaquults
Wahee	Fine, mixed, semiactive, thermic Aeric Endoaquults

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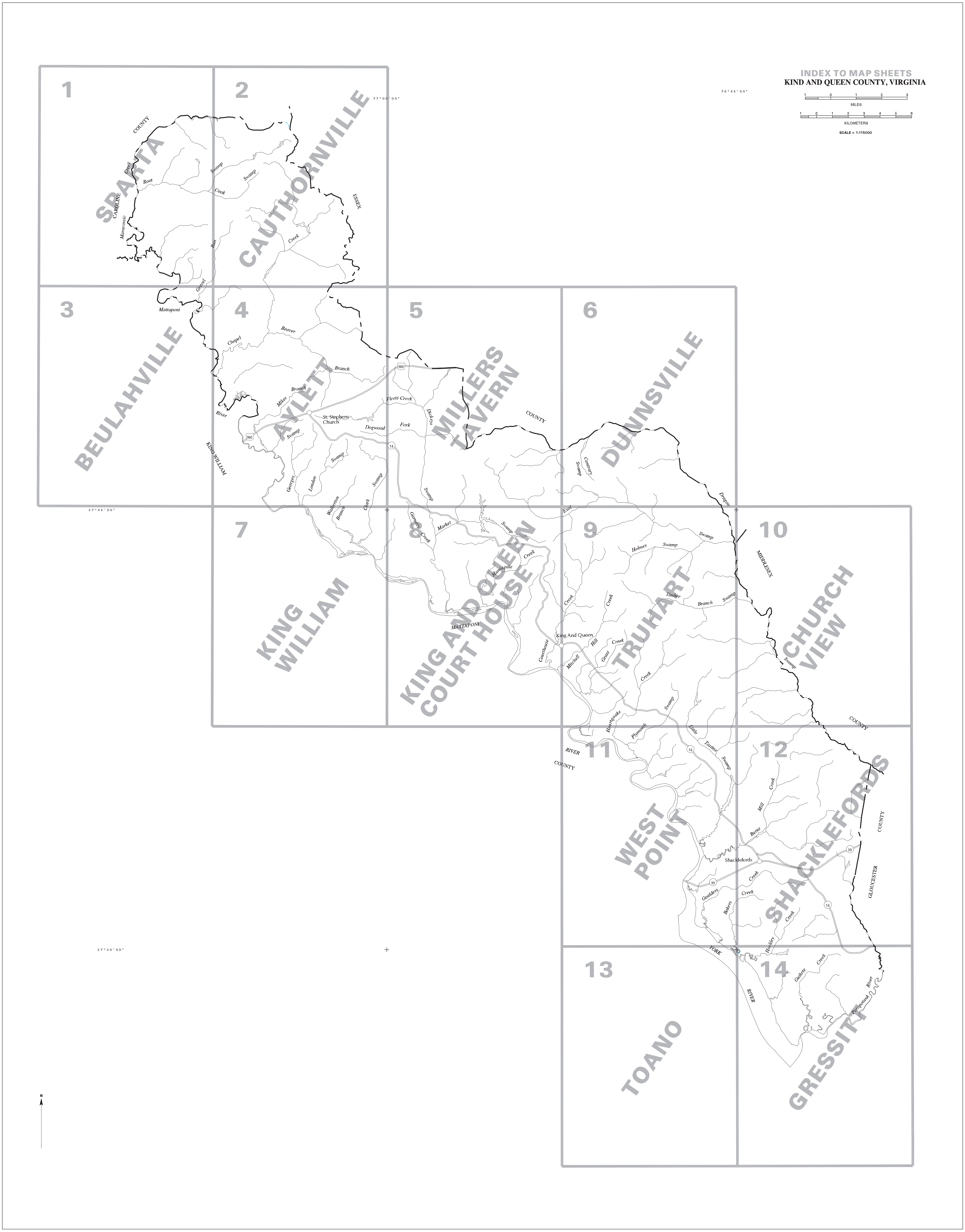
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GLOUCESTER
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MATTAPONI
YORK
RIVER
St. Stephens Church
King And Queen
Shacklefords
N

SOIL LEGEND

Map symbols consist of numbers or a combination of numbers and letters. The number represents the kind of soil. A capital letter following the number indicates the slope class. Symbols without a slope letter represent nearly level soils, miscellaneous areas, and soils named for higher categories.

SYMBOL	NAME
1A	Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded
2A	Bojac loamy sand, 0 to 2 percent slopes, rarely flooded
2B	Bojac loamy sand, 2 to 6 percent slopes, rarely flooded
3A	Craven fine sandy loam, 0 to 2 percent slopes
3B	Craven fine sandy loam, 2 to 6 percent slopes
3C	Craven fine sandy loam, 6 to 10 percent slopes
4A	Emporia sandy loam, 0 to 2 percent slopes
4B	Emporia sandy loam, 2 to 6 percent slopes
4C	Emporia sandy loam, 6 to 10 percent slopes
5D	Emporia-Slagle-Rumford complex, 6 to 15 percent slopes
5E	Emporia-Slagle-Rumford complex, 15 to 50 percent slopes
6A	Faceville fine sandy loam, 0 to 2 percent slopes
6B	Faceville fine sandy loam, 2 to 6 percent slopes
7A	Kinston and Bibb soils, 0 to 2 percent slopes, occasionally flooded
8A	Levy silt loam, 0 to 2 percent slopes, very frequently flooded
9A	Mattaponi fine sandy loam, 0 to 2 percent slopes
9B	Mattaponi fine sandy loam, 2 to 6 percent slopes
9C	Mattaponi fine sandy loam, 6 to 10 percent slopes
10A	Munden loamy sand, 0 to 2 percent slopes
10B	Munden loamy sand, 2 to 6 percent slopes
11A	Pits, gravel
12A	Rappahannock muck, 0 to 1 percent slopes, very frequently flooded
13A	Roanoke loam, 0 to 2 percent slopes, rarely flooded
14B	Rumford loamy sand, 0 to 6 percent slopes
14C	Rumford loamy sand, 6 to 10 percent slopes
15A	Slagle sandy loam, 0 to 2 percent slopes
15B	Slagle sandy loam, 2 to 6 percent slopes
15C	Slagle sandy loam, 6 to 10 percent slopes
16A	State fine sandy loam, 0 to 2 percent slopes
16B	State fine sandy loam, 2 to 6 percent slopes
17A	Suffolk sandy loam, 0 to 2 percent slopes
17B	Suffolk sandy loam, 2 to 6 percent slopes
17C	Suffolk sandy loam, 6 to 10 percent slopes
18B	Tarboro sand, 0 to 6 percent slopes, rarely flooded
19A	Tetotum fine sandy loam, 0 to 2 percent slopes, rarely flooded
19B	Tetotum fine sandy loam, 2 to 6 percent slopes, rarely flooded
19C	Tetotum fine sandy loam, 6 to 10 percent slopes
20A	Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded
21A	Wahee fine sandy loam, 0 to 2 percent slopes, rarely flooded
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Reservation (national forest or park, state forest or park)
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline

TRANSPORTATION

- Divided roads
- Other roads

ROAD EMBLEM & DESIGNATIONS

- Federal 287
- State 52

HYDROGRAPHIC FEATURES

STREAMS

- Unclassified
- Drainage end

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS 1A 3A

MISCELLANEOUS SURFACE FEATURES

- Gravel pit
- Wet spot

UNITED STATES
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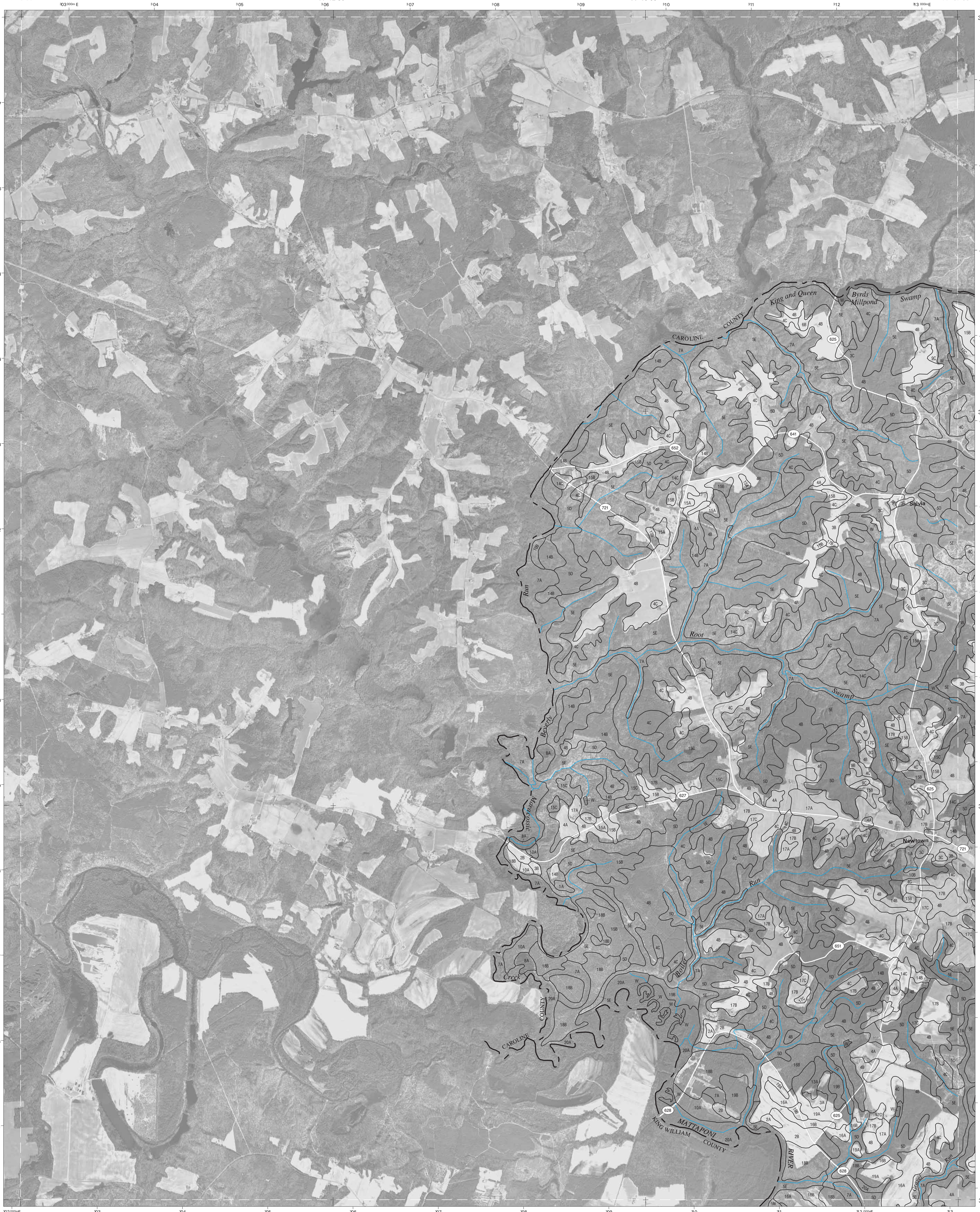
KING AND QUEEN COUNTY, VIRGINIA
SPARTA QUADRANGLE
SHEET NUMBER 1 OF 14



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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KING AND QUEEN COUNTY, VIRGINIA
CAUTHORNVILLE QUADRANGLE
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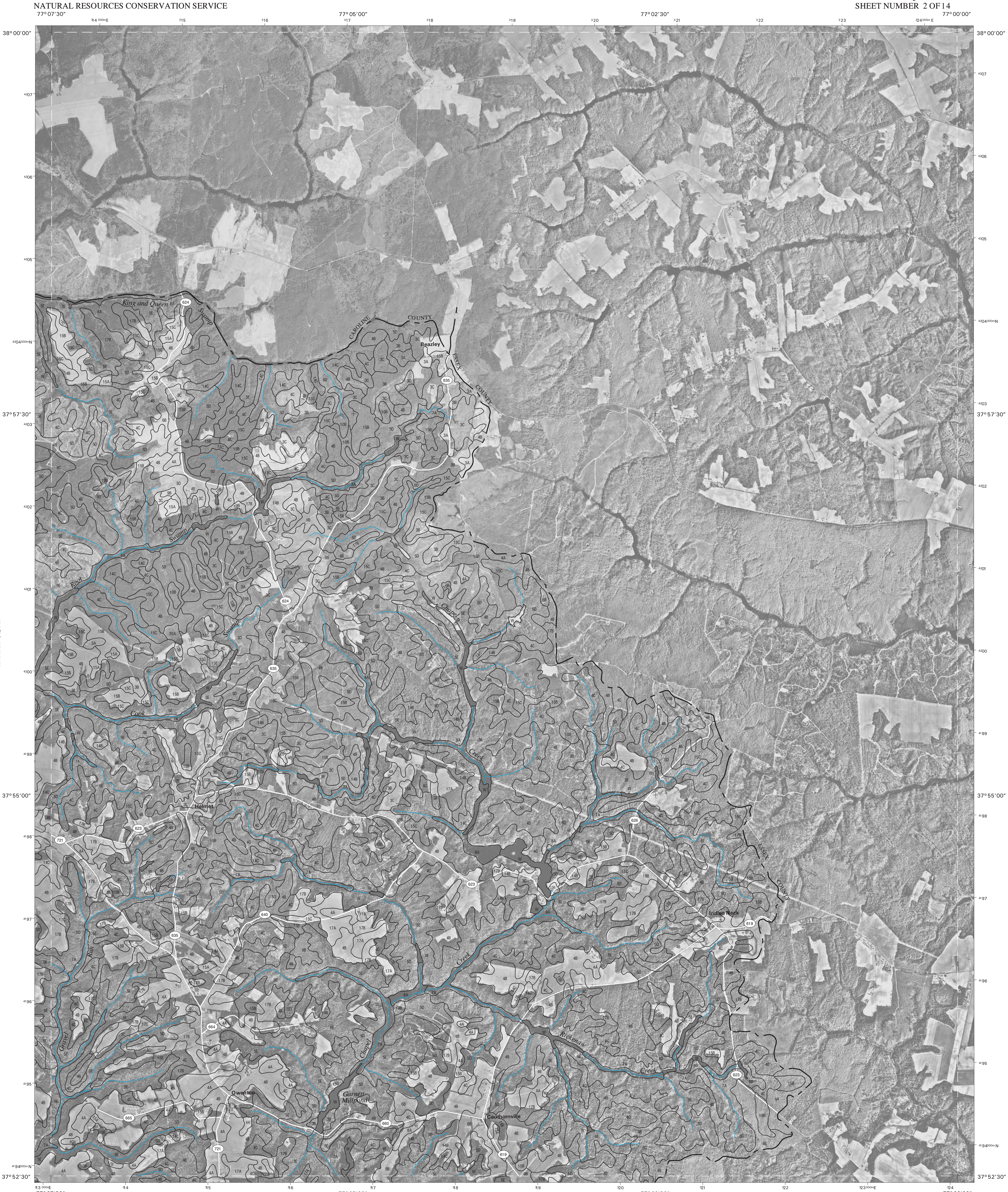

Joins sheet 3, Beulahville

Joins sheet 5, Millers Tavern

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

1		
3	4	5

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NATURAL RESOURCES CONSERVATION SERVICE

KING AND QUEEN COUNTY, VIRGINIA
BEULAHVILLE QUADRANGLE
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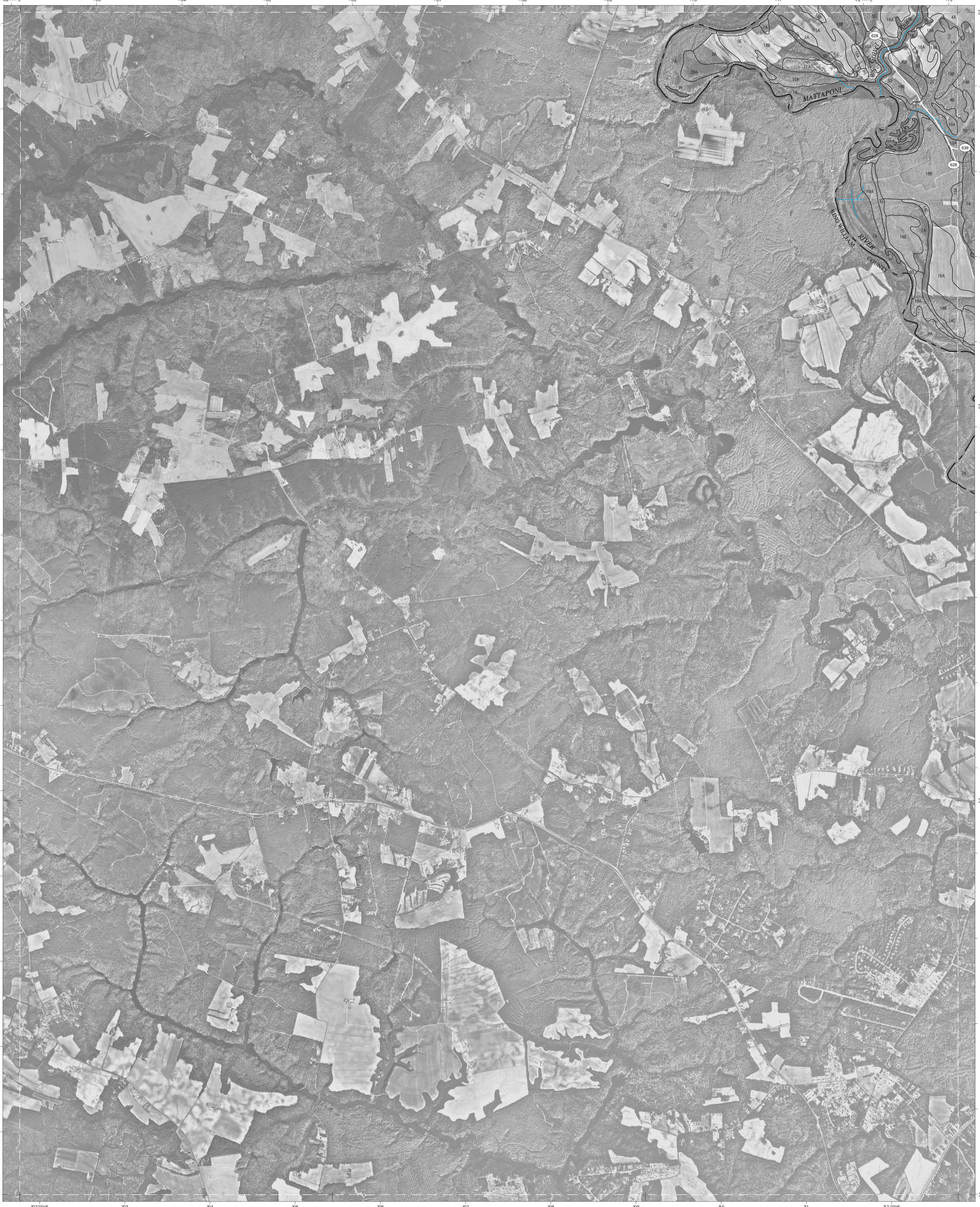

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KING AND QUEEN COUNTY, VIRGINIA
AYLETT QUADRANGLE
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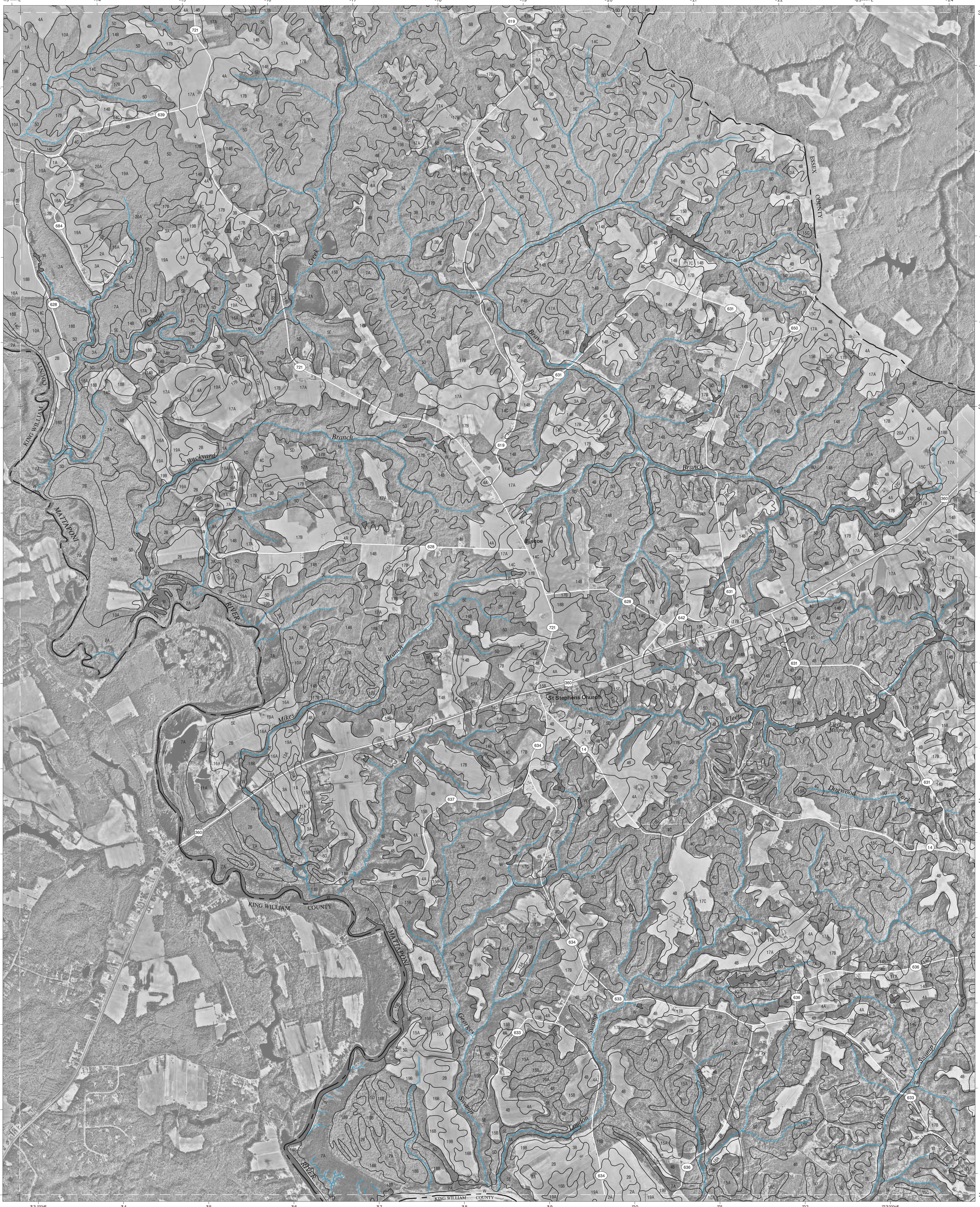

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NORTH

QUADRANGLE LOCATION

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1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

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KING AND QUEEN COUNTY, VIRGINIA
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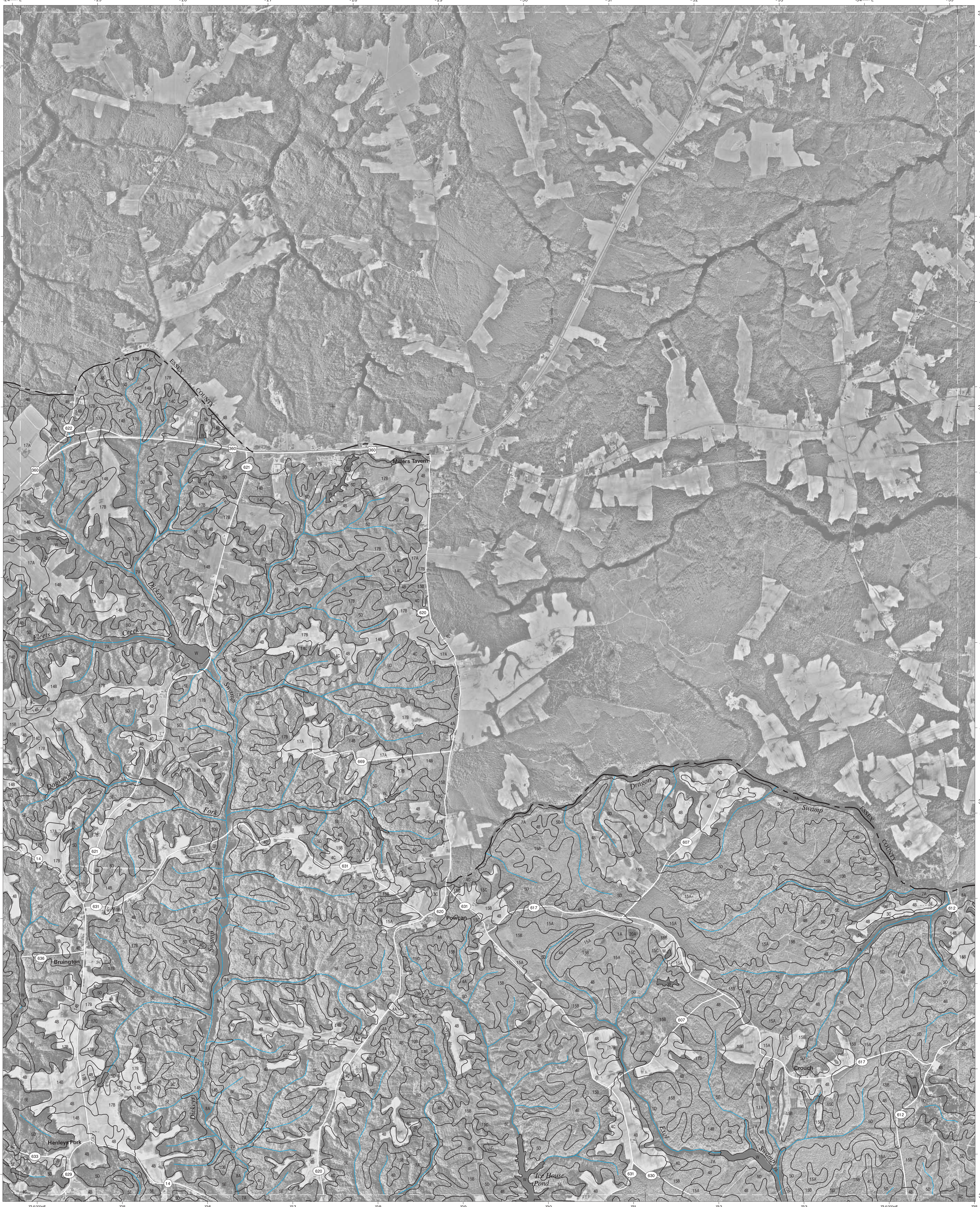
Joins sheet 2, Cauthornville



77° 00′00″ 76° 57′30″ 76° 55′00″ 76° 52′30″
37° 52′30″ 37° 50′00″ 37° 47′30″ 37° 45′00″

Joins sheet 4, Aylett
Joins sheet 6, Dunnsville
Joins sheet 7, King William
Joins sheet 8, King And Queen Court House
Joins sheet 9, Truhart

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FEET

KILOMETERS

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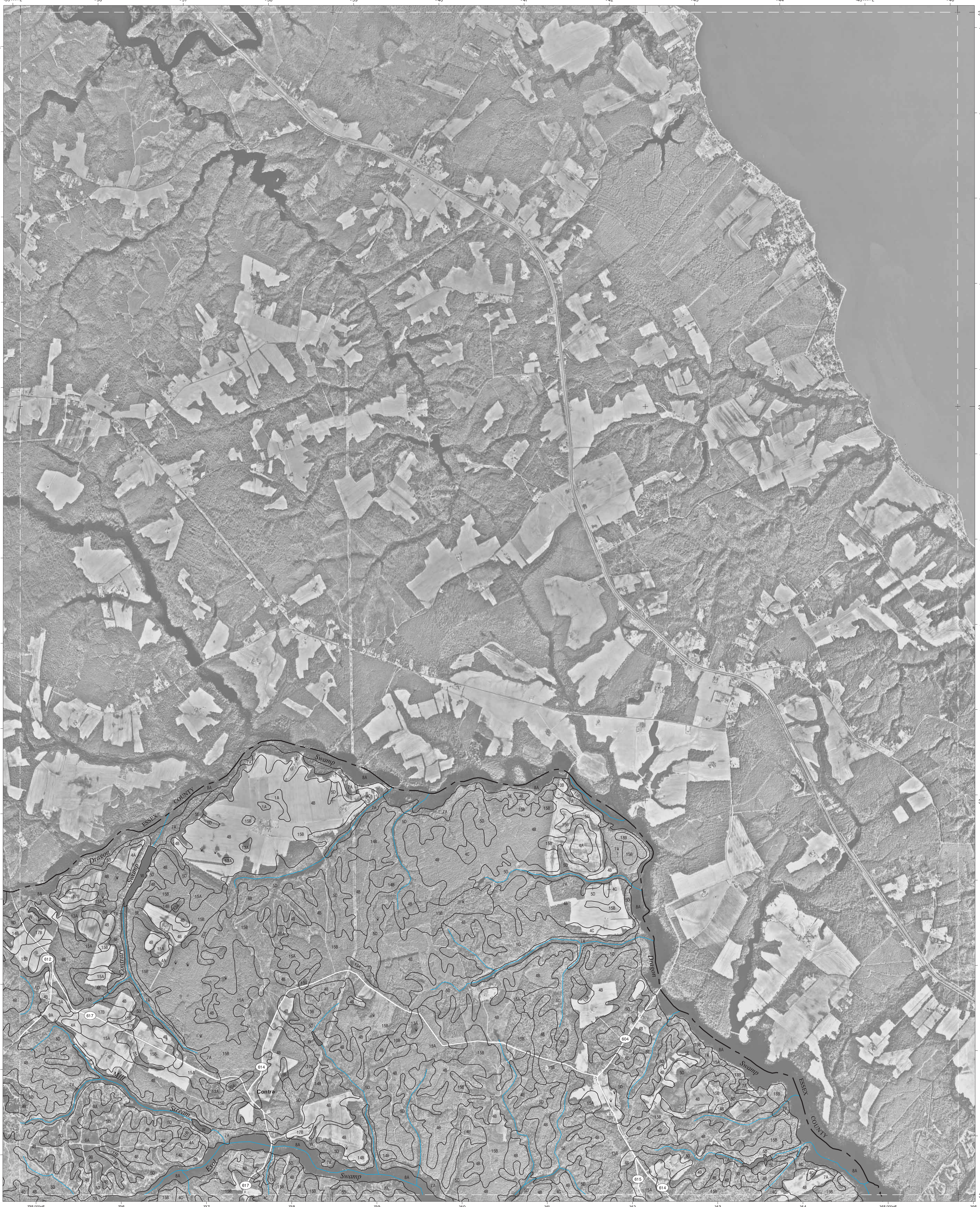

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

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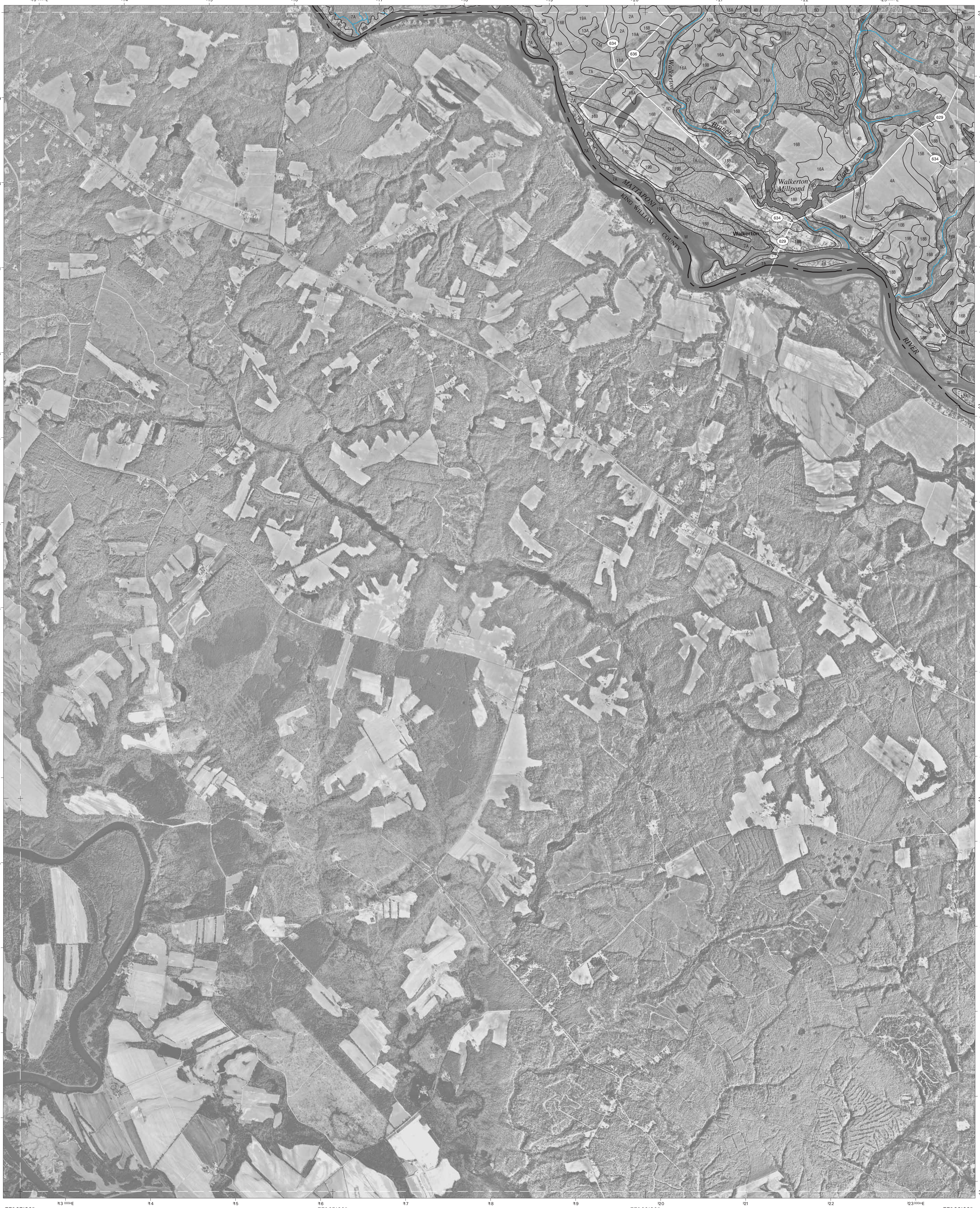
Joins sheet 5, Millers Tavern



Joins sheet 8, King And Queen Court House

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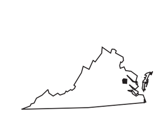
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

3	4	5
		8

3 BEULAHVILLE
4 AYLETT
5 MILLERS TAVERN
8 KING AND QUEEN COURT HOUSE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

KING AND QUEEN COUNTY, VIRGINIA
KING AND QUEEN COURT HOUSE QUADRANGLE
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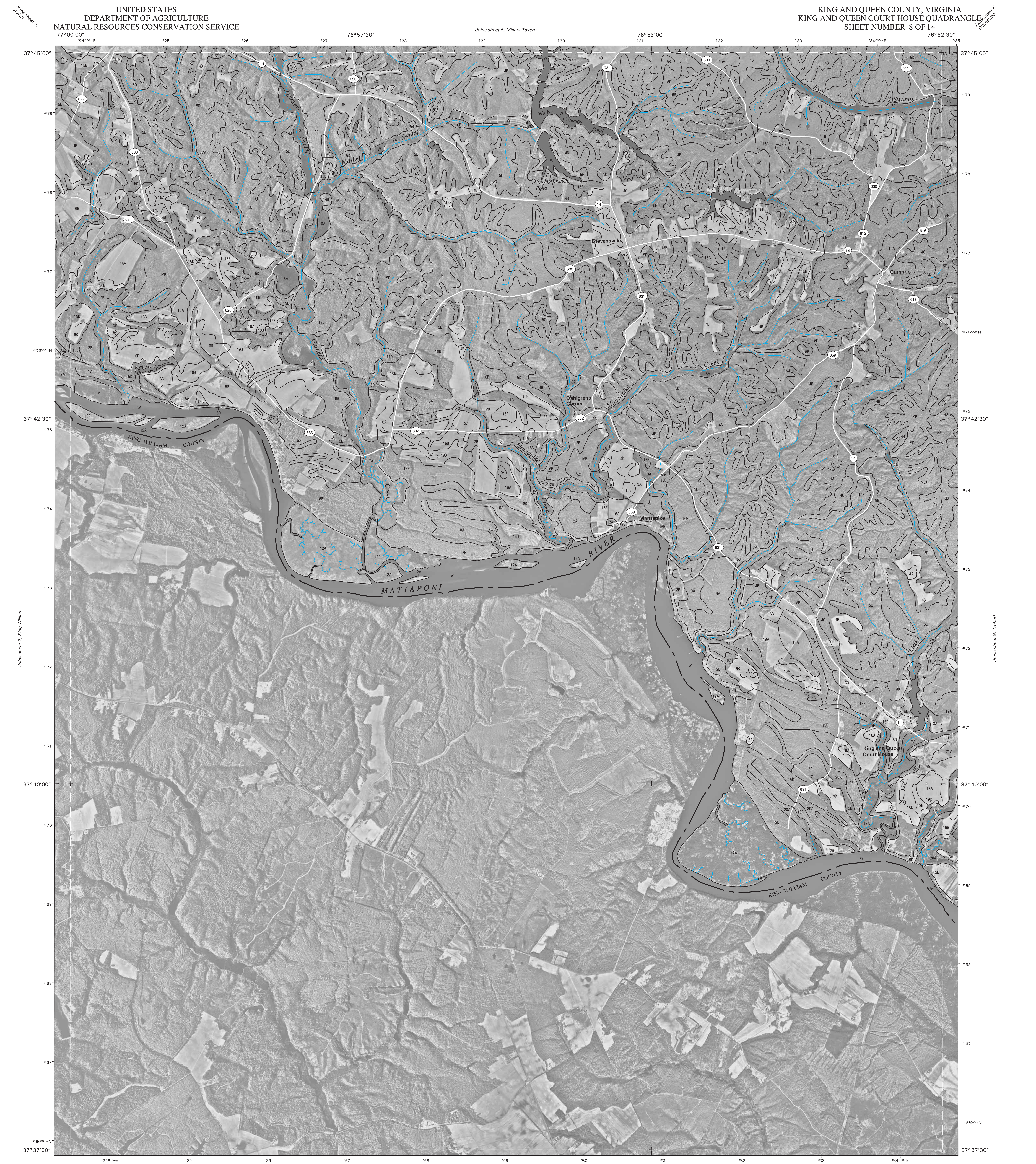

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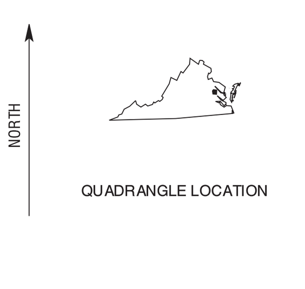
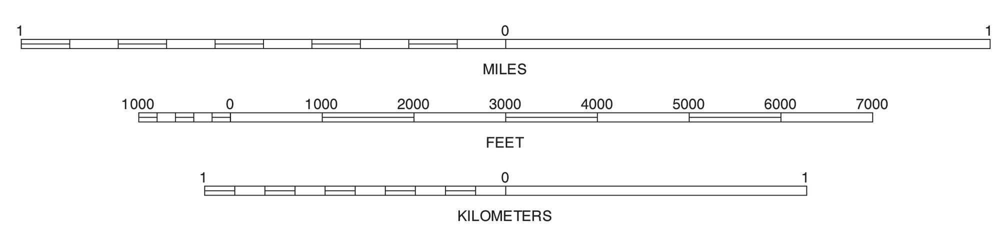
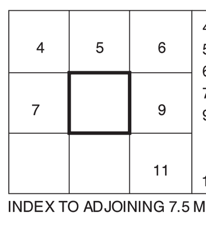
North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 18.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.







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5 MILLERS TAVERN
6 DUNNSVILLE
7 KING WILLIAM
9 TRUHART
11 WEST POINT
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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KING AND QUEEN COUNTY, VIRGINIA
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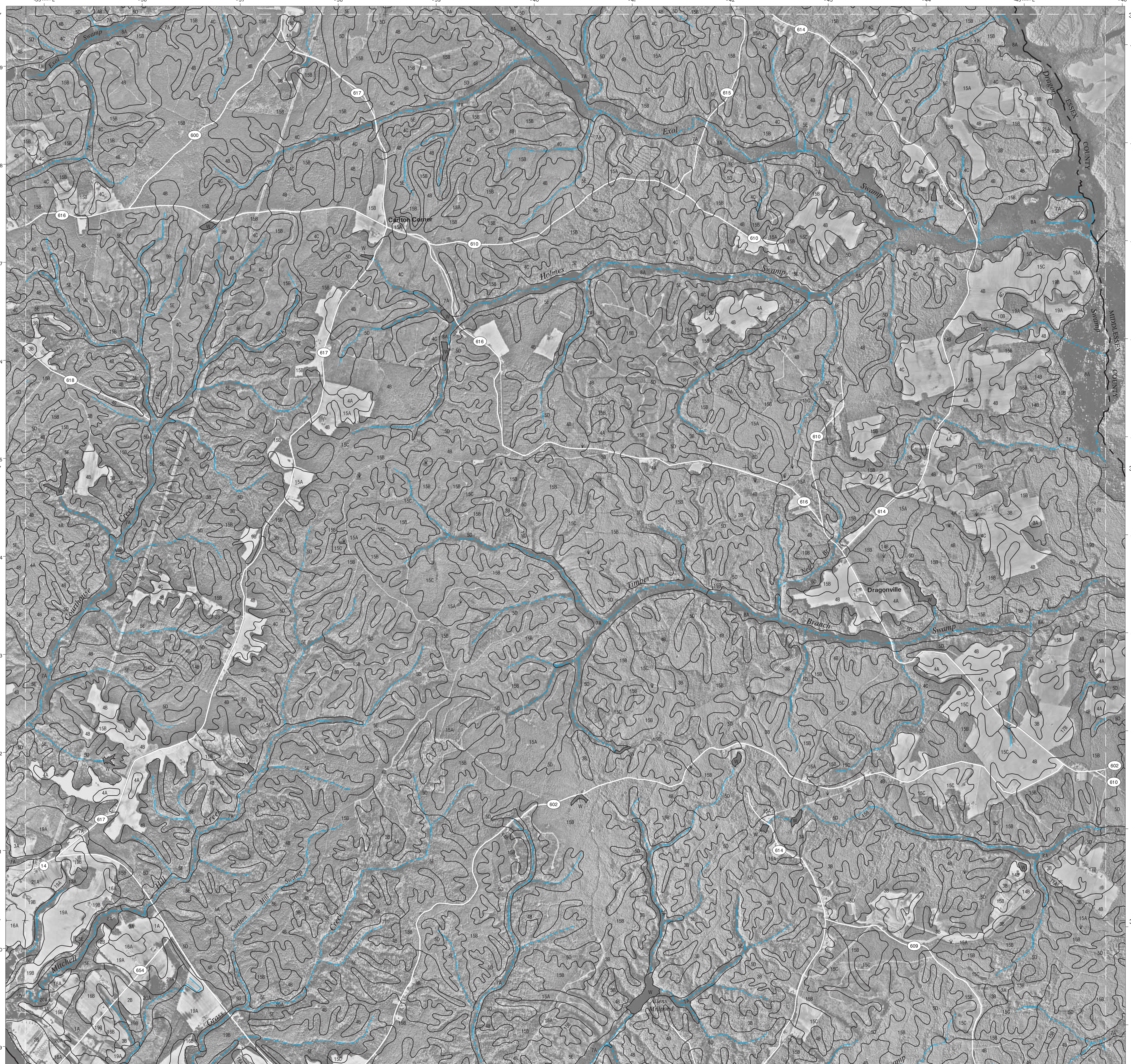
Joins sheet 5, Millers Tavern

Joins sheet 6, Dunnsville



Joins sheet 8, King And Queen Court House

Joins sheet 10, Church View

Joins sheet 11, West Point

Joins sheet 12, Shacklefords

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

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SCALE 1:24000

MILES

FEET

KILOMETERS

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8		10
	11	12

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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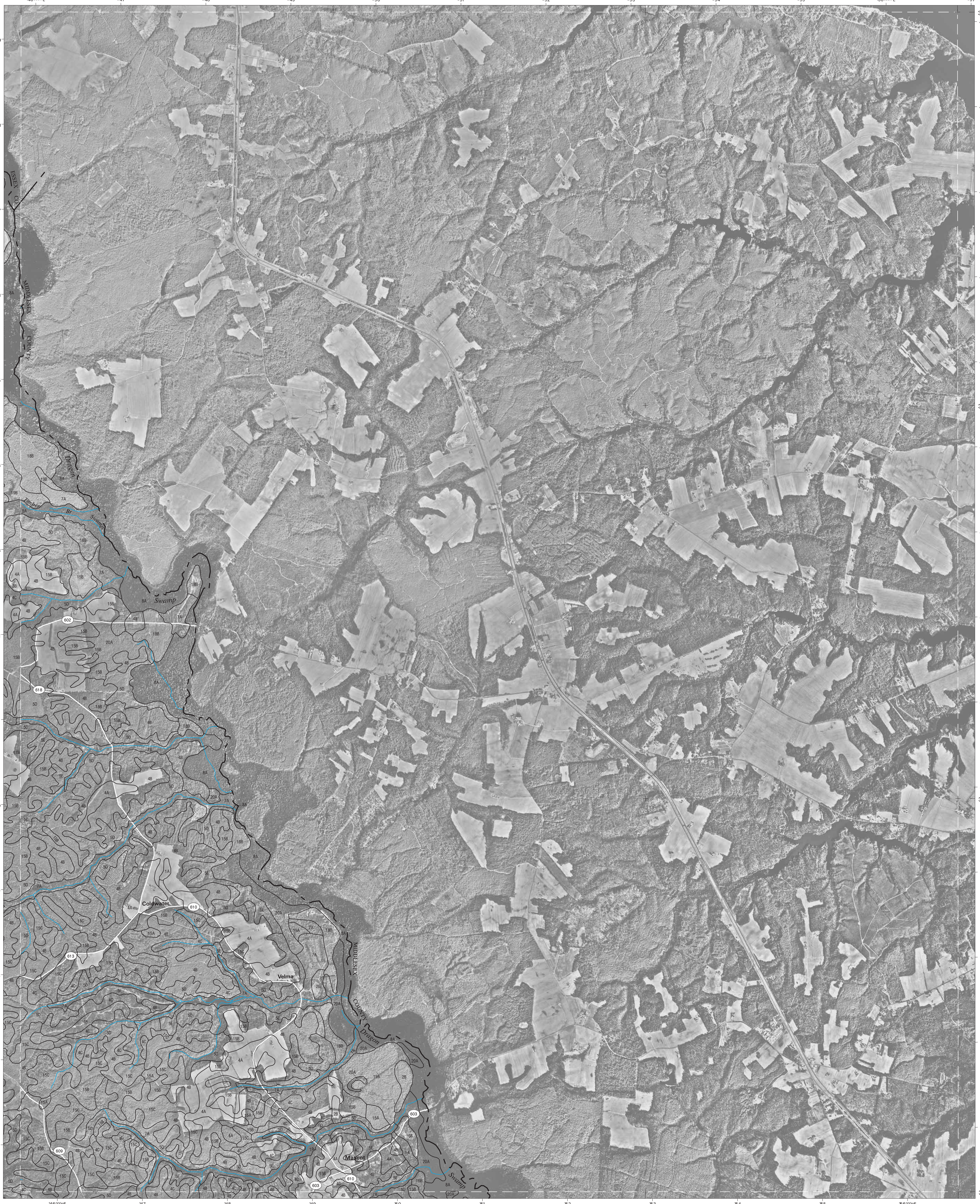
KING AND QUEEN COUNTY, VIRGINIA
CHURCH VIEW QUADRANGLE
SHEET NUMBER 10 OF 14

Joins sheet 6, Dunnsville



Joins sheet 11, West Point

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

6			6 DUNNSVILLE
9	■		9 TRUHART
11	12		11 WEST POINT 12 SHACKLEFORDS

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

KING AND QUEEN COUNTY, VIRGINIA
WEST POINT QUADRANGLE
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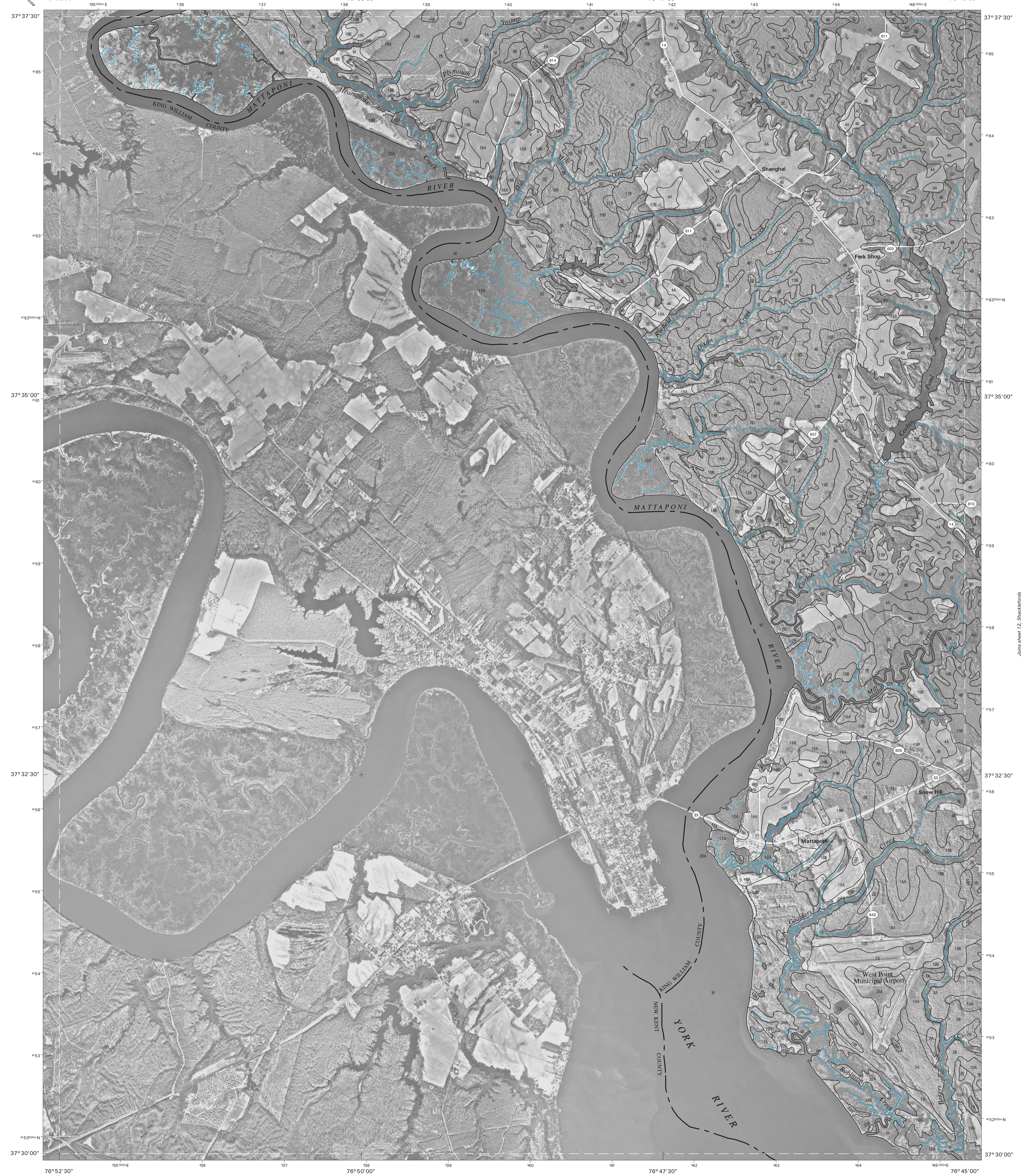
Joins sheet 8, King And Queen Court House

Joins sheet 9, Truhart

Joins sheet 10, Church View



Joins sheet 12, Shacklefords

Joins sheet 13, Toano

Joins sheet 14, Gressitt

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1994-1995 aerial photography. Hydrography and culture information were acquired from Natural Resources Conservation Service. Hydrography and cultural layers were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 18.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

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UNITED STATES
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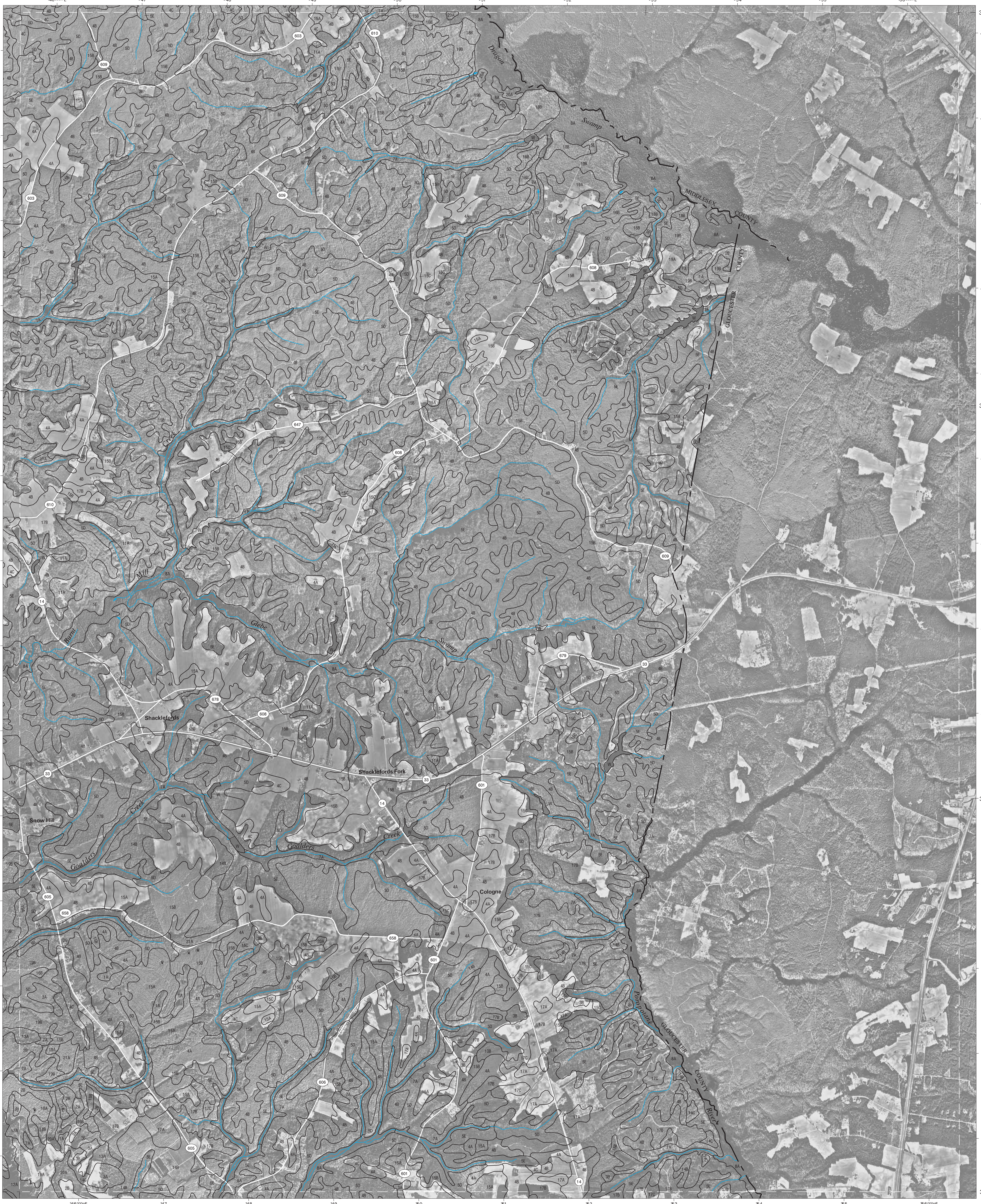
KING AND QUEEN COUNTY, VIRGINIA
SHACKLEFORDS QUADRANGLE
SHEET NUMBER 12 OF 14

Joins sheet 9, Truhart

Joins sheet 10, Church View



Joins sheet 11, West Point

Joins sheet 14, Gressitt

Joins sheet 13, Toano

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NORTH

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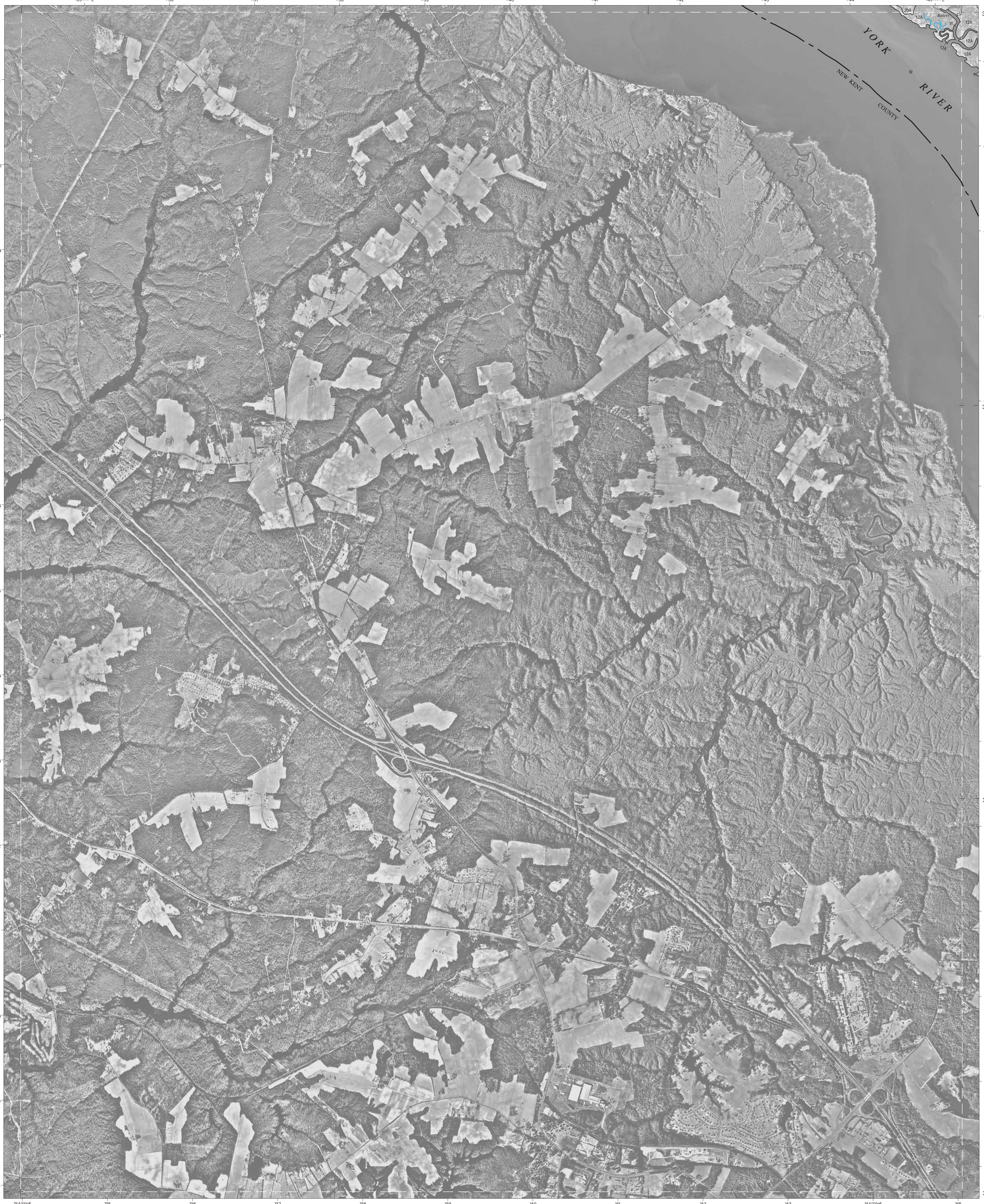
Joins sheet 12, Shacklefords



Joins sheet 14, Gressitt

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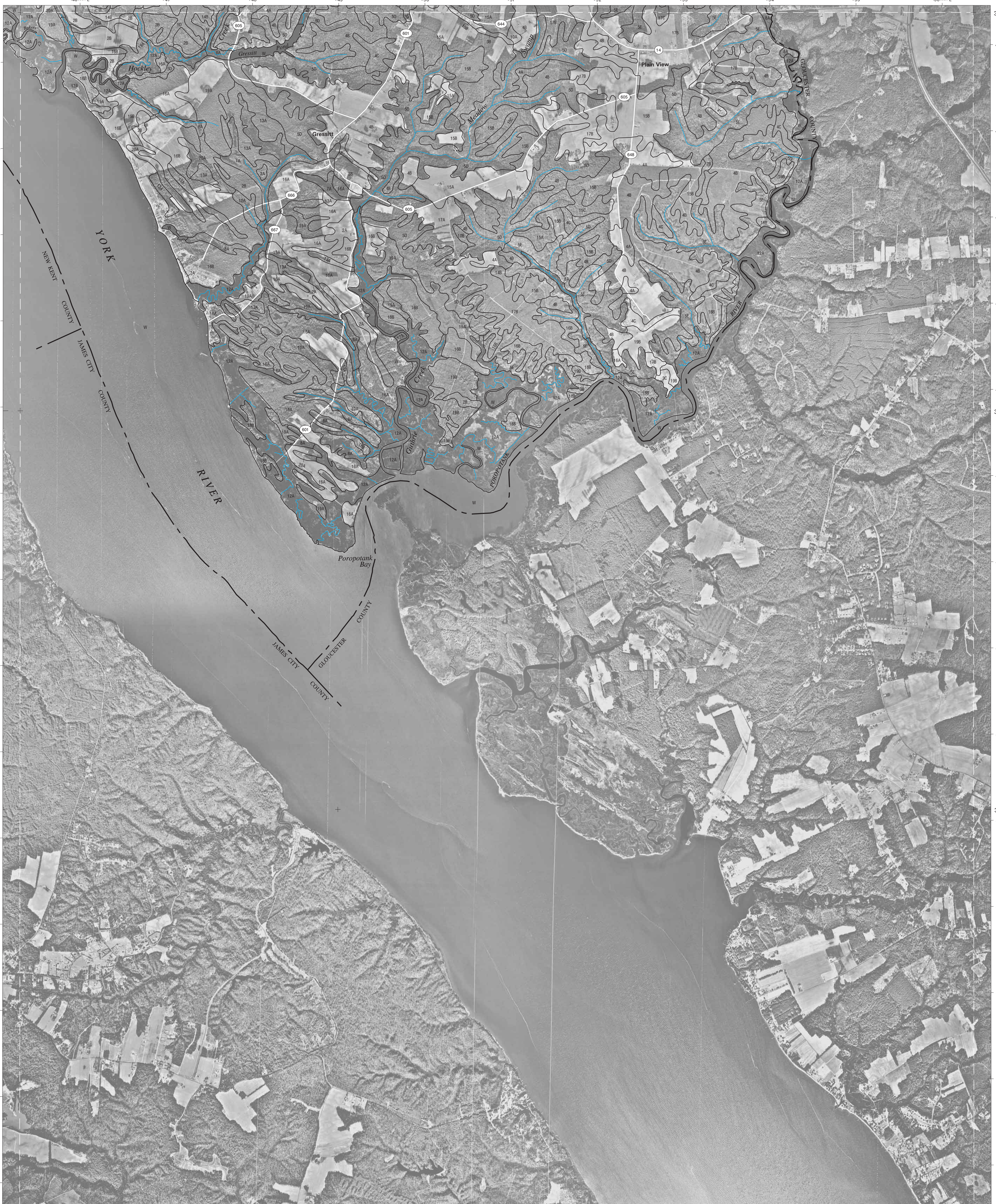
Joins sheet 11, West Point

Joins sheet 12, Shacklefords

Joins sheet 13, Toano



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